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SCDOT Construction and Resources Management (CRM) East Program

Construction Engineering and Inspection in a Rural Environment: The Florence/Sumter Experience

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There is no aspect of this project in which our team does not work on meeting the "27 in 7" goal—getting 27 years worth of work done in seven years. In this article the author covers the benefits of three diverse issues—establishing separate area offices in an area where project sites were spread out instead of using project trailers, early and continuing constructability reviews, and the benefits of being flexible when interacting with the client.

South Carolina Department of Transportation's (SCDOT's) large and aggressive Construction and Resource Management (CRM) road construction program had to be broken down and subdivided to make the extraordinary volume of projects more manageable. PB divided the CRM East¹ program into four management areas: Rock Hill, Columbia, Myrtle Beach, and Florence/Sumter. Even this breakdown was not adequate for the projects of the Florence/ Sumter area office because they are spread out over a large, mostly rural area that straddles three SCDOT districts. Maintaining coordination and communication to keep these projects on track was a serious challenge.

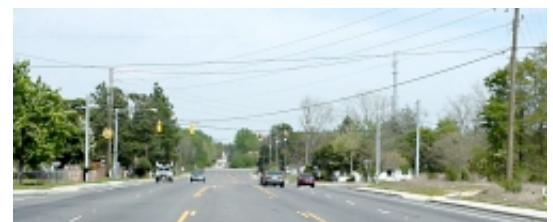
Florence/Sumter Program

The Florence/Sumter area office is responsible for nine road and bridge improvement projects ranging in size from \$2.5 million to \$60 million. The majority of these consist of widening existing two-lane primary east-west routes to four-lane divided or five-lane sections (Figure 1). These routes (SC 38, US 378 and US 521) lead to the beach areas of South Carolina. The widenings are expected to accommodate future increases in traffic and improve the hurricane evacuation capabilities now provided by I-95.

It became apparent early on that two separate area offices were needed because of the remoteness of the project sites. The most obvious locations for these offices were Florence and Sumter, the two largest cities within this area. Having area offices in both locations provided two distinct advantages: projects could be consolidated by geographic location and by SCDOT District, and we had access to high-speed data connections.

Consolidation. This consolidation facilitates good communications with SCDOT and minimizes the learning curve for district staff. It has proven to be a real asset in maintaining project quality standards, as indicated by the excellent audit reviews obtained from the CRM East/SCDOT internal audit team and the SCDOT Quality Management Team. The two offices also provide more centralized and secure locations for project records than would project trailers.

High Speed Connections. The remoteness of the project sites would have made high-speed access to data limited or nonexistent. It was critical to have a reliable high-speed data connection, however, because all daily project work reports and quantity tracking are maintained on laptop computers and then downloaded to SCDOT's SiteManager server in Columbia². Establishing the two "permanent" offices in these cities as opposed to setting up project trailers gave us access to the data connections we needed.



Pre-Bid and Ongoing Constructability Reviews

Early and continuing constructability reviews are vital to maintaining project schedule and minimizing cost overruns, particularly on projects following an accelerated schedule. The early reviews done by personnel in the CRM East area offices and SCDOT District office have:

- **Resulted in reduced conflicts and changes** once construction is underway, particularly with regard to local soil conditions and anticipated area of mucking. Early reviews provided adequate mucking quantities and resulted in getting a better unit price. In addition, where the areas of mucking were significant, we added a "geogrid" fabric item that reduced the amount of mucking required.
- **Enabled construction personnel to add anticipated pay items to the contract** before it was signed, including additional drainage structures, slope drains, under-drains, flowable fill, etc. Having these items in the contract up front resulted in the contractor getting better unit prices for them and afforded us more flexibility for unforeseen conditions.
- **Reduced delays and cost increases during the construction stages.** Our reviews of the construction staging drawings enabled us to provide insight that resulted in changes and cost savings. For example:
 - **Substitution of traffic barrier.** The traffic control plans called for setting a traffic barrier for the Stage 1 detour at the east end of the project. The condition of the existing guardrail was excellent and met current standards, so it was removed and reset in lieu of the traffic barrier. This change represented a saving of \$10,000.
 - **Elimination of asphalt base.** The plans specified the use of 420 pounds per square yard of hot mix asphalt aggregate base in the temporary detour sections and 200 pounds per square yard of surface course. Given the high quality of the subgrade and borrow material being used, it was determined that eight inches of graded aggregate base course could be used in lieu of the hot mix asphalt aggregate base. This change represented a saving of more than \$15,000.
 - **Different impact attenuators.** During a review of the traffic control plans it was determined that TL-3 (70 mph) portable terminal impact attenuators were specified. This type of attenuator is typically used on interstates; however on this project they were going to be used on a two-lane roadway with a speed limit of 45 mph. The designer of record approved the use of TL-3 (60 mph) attenuators. The prime contractor provided a credit for the substitution, which resulted in a savings of \$20,000.³



Figure 1: (left to right) McCray's Mill Road widened to a five lanes with curb and gutter section; Typical rural two-lane road that will be widened to a four-lane divided road; Typical rural two-lane road widened to a four-lane road with a striped median.

The Challenge of Working in Three SCDOT Districts

The biggest challenge in the Florence/Sumter area of CRM East has been the need to work with three SCDOT Districts. Each district has subtle differences from the others in the way it operates and handles administrative matters. Adapting to these differences has been critical to maintaining client satisfaction with each district. It also required more frequent communication/coordination early on with each district's personnel to ensure that our understanding of their administrative processes was accurate and their needs were being met. As a result of this effort we have become a trusted extension of each district's staff.

Our efforts in these regards have resulted in fewer mistakes and have enabled us to better manage cost overruns and potential delay impacts to the projects. Understanding each district's needs and expectations early on continues to be critical to guaranteeing success for SCDOT and the CRM East projects. SCDOT

Bob Farley, a project manager with PB, has 19 years' experience in construction management covering roadways, bridges and tunnels. While with PB he has worked on the Central Artery/Tunnel (CA/T) Project in Boston, Massachusetts and the Construction and Resource Management project in South Carolina.

¹ For a description of CRM East, please refer to a preceding article, "South Carolina Department of Transportation Construction and Resources Management Program" by Jim Van Loben Sels and Dan Neal.

² SiteManager is a database software package used by SCDOT. Please see the preceding article, "Construction Management and Construction Engineering/ Inspection" by Steve Page for more information on how Site-Manager is helping the CRM teams to manage their projects.

³ For another article about impact attenuators, see "Installing QuadGuard Impact Attenuators on Existing Bridge Decks with Transverse Post-Tensioned Tendons" by Abbie Darvish in the Networking section

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TCRP

REPORT 131

TRANSIT
COOPERATIVE
RESEARCH
PROGRAM

A Guidebook for the Evaluation of Project Delivery Methods

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TCRP REPORT 131

**A Guidebook for the
Evaluation of Project
Delivery Methods**

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TRANSIT COOPERATIVE RESEARCH PROGRAM

The nation's growth and the need to meet mobility, environmental, and energy objectives place demands on public transit systems. Current systems, some of which are old and in need of upgrading, must expand service area, increase service frequency, and improve efficiency to serve these demands. Research is necessary to solve operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the transit industry. The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the transit industry can develop innovative near-term solutions to meet demands placed on it.

The need for TCRP was originally identified in *TRB Special Report 213—Research for Public Transit: New Directions*, published in 1987 and based on a study sponsored by the Urban Mass Transportation Administration—now the Federal Transit Administration (FTA). A report by the American Public Transportation Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the longstanding and successful National Cooperative Highway Research Program, undertakes research and other technical activities in response to the needs of transit service providers. The scope of TCRP includes a variety of transit research fields including planning, service configuration, equipment, facilities, operations, human resources, maintenance, policy, and administrative practices.

TCRP was established under FTA sponsorship in July 1992. Proposed by the U.S. Department of Transportation, TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). On May 13, 1992, a memorandum agreement outlining TCRP operating procedures was executed by the three cooperating organizations: FTA, the National Academies, acting through the Transportation Research Board (TRB); and the Transit Development Corporation, Inc. (TDC), a nonprofit educational and research organization established by APTA. TDC is responsible for forming the independent governing board, designated as the TCRP Oversight and Project Selection (TOPS) Committee.

Research problem statements for TCRP are solicited periodically but may be submitted to TRB by anyone at any time. It is the responsibility of the TOPS Committee to formulate the research program by identifying the highest priority projects. As part of the evaluation, the TOPS Committee defines funding levels and expected products.

Once selected, each project is assigned to an expert panel, appointed by the Transportation Research Board. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, TCRP project panels serve voluntarily without compensation.

Because research cannot have the desired impact if products fail to reach the intended audience, special emphasis is placed on disseminating TCRP results to the intended end users of the research: transit agencies, service providers, and suppliers. TRB provides a series of research reports, syntheses of transit practice, and other supporting material developed by TCRP research. APTA will arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by urban and rural transit industry practitioners.

The TCRP provides a forum where transit agencies can cooperatively address common operational problems. The TCRP results support and complement other ongoing transit research and training programs.

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FOREWORD

By **Gwen Chisholm Smith**

Staff Officer

Transportation Research Board

TCRP Report 131: A Guidebook for the Evaluation of Project Delivery Methods describes various project delivery methods for major transit capital projects. This guidebook also includes an evaluation of the impacts, advantages, and disadvantages of including operations and maintenance as a component of a contract for a project delivery method. The project delivery methods discussed are design-bid-build (DBB), construction manager at risk (CMR), design-build (DB), and design-build-operate-maintain (DBOM). The guidebook offers a three-tiered project delivery selection framework that may be used by owners of transit projects to evaluate the pros and cons of each delivery method and select the most appropriate method for their project. Tier 1 is a qualitative approach that allows the user to document the advantages and disadvantages of each competing delivery method. The user can then review the results of this analysis and select the best delivery method. If, at the conclusion of this analysis, a clear option does not emerge, the user then moves on to Tier 2. Tier 2 is a weighted-matrix approach that allows the user to quantify the effectiveness of competing delivery methods and select the approach that receives the highest score. The third tier uses principles of risk analysis to evaluate delivery methods. The selection framework may also be useful as a means to document the decision in the form of a Project Delivery Decision Report. The guidebook will be helpful to transit general managers, policymakers, procurement officers, planners, and consultants in evaluating and selecting the appropriate project delivery method for major transit capital projects.

Developers of major public and private projects in the United States and elsewhere are using a variety of project delivery methods to complete those projects. In the United States, transit projects have been traditionally carried out through a design-bid-build process. There is considerable interest on the part of transportation agencies in alternative forms of project delivery and their potential benefits. However, a comprehensive discussion of the advantages and disadvantages of these methods in the context of the U. S. transit environment has been lacking.

The objective of TCRP Project G-08 was to develop a guidebook to help transit agencies evaluate and select the most appropriate project delivery method for major capital projects and evaluate the advantages and disadvantages of including operations and maintenance as a component of a contract for the project delivery system. To accomplish the project objective, Northeastern University, in association with the University of Oklahoma, the University of Colorado, Keville Enterprises, and Fithian Architects, described and critiqued pertinent issues related to each project delivery method in terms of its application to transit in the United States. The research team also identified agencies, suppliers, and individuals with experience in using the various project delivery and contracting methods and conducted in-

depth interviews with those entities to gather lessons learned. In addition, the research team described and critiqued pertinent issues related to contracting out operations and maintenance with new construction projects. The research team included a discussion of the impacts, advantages, and disadvantages of including operations and maintenance in the project delivery contract in the guidebook. Finally, the researchers developed a decision matrix to guide decision makers in selecting the most appropriate project delivery and contracting method(s) in various transit environments.

A companion publication to this report, *TCRP Web Document 41: Evaluation of Project Delivery Methods*, reviews pertinent literature and research findings related to various project delivery methods for transit projects. It contains definitions of project delivery methods and discusses the existing selection approaches commonly used by transit agencies. *TCRP Web Document 41* may found on the TRB website at http://trb.org/news/blurp_detail.asp?id=9886.



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A Guidebook for the Evaluation of Project Delivery Methods

Objective

Various project delivery methods are available to the developers of public projects in the United States. While the traditional design-bid-build delivery method remains the most common method, there is considerable interest on the part of transportation agencies in alternative methods of project delivery and the potential of these alternative methods to save money and time.

The objective of this guidebook is to assist transit agencies in evaluating and selecting the most appropriate project delivery method for their projects and in documenting this decision in a Project Delivery Decision Report. The guidebook is based on the fundamental premise that there is no *one* best delivery method for all projects, but that a project delivery method should be selected on the basis of each project's unique characteristics. This selection should be made by considering the benefits and disadvantages of competing delivery methods for the project under consideration.

The project delivery method is the process by which a construction project is comprehensively designed and constructed for an owner—including project scope definition; organization of designers, constructors, and various consultants; sequencing of design and construction operations; execution of design and construction; and closeout and start-up. With the rapid changes in procurement laws, public agencies now share the ability of their private-sector counterparts to acquire construction services via alternative project delivery methods, such as construction management, design-build, and other hybrid systems. In some instances, methods such as design-build may include operations and maintenance as well as multiyear warranties in the contract.

The research approach in developing the project delivery method selection framework was to synthesize relevant literature on project delivery methods and previous work in developing decision support systems for project delivery selection. In addition, face-to-face structured interviews were conducted with several transit agencies to learn how each project delivery method had been implemented in actual transit projects. The authors traveled to five selected project sites, interviewed project directors, and collected data on nine major transit projects. On the basis of this research (i.e., review of the literature, interviews with project directors, and data collection on nine major transit projects) and discussions among the research team and TCRP Project G-08 panel, the researchers identified a set of *pertinent issues*. These pertinent issues are issues that were found to have profound effect on the choice of project delivery

method. Once the authors identified the *pertinent issues*, these issues were grouped into the following categories: project-level issues, agency-level issues, public policy/regulatory issues, lifecycle issues, and other issues. The issues were also used to develop the project delivery method selection framework.

Selection System Framework

A three-tiered project delivery selection system was developed that consists of the following:

Tier 1—Analytical Delivery Decision Approach

Tier 2—Weighted-Matrix Delivery Decision Approach

Tier 3—Optimal Risk-Based Approach

The Tier 1—Analytical Delivery Decision Approach provides a framework for agencies and their project delivery teams to define project goals and examine the advantages and disadvantages of each delivery method within the context of these goals. The aim of this approach is to help agencies to understand project delivery method attributes and to determine if their specific project goals align with the attributes of a particular delivery method. The Tier 1 approach also provides a “go/no go” review to determine whether one or more project delivery methods should be excluded from the examination.

At the completion of the Tier 1 approach, the agency may not have a single, clear, and logical choice for a project delivery method. If this is the case, the agency then moves on to the Tier 2 approach with the best delivery method options from Tier 1 and creates a more detailed analysis to select the final project delivery method. The Tier 1 approach is designed to provide a simple and straightforward selection process. It is anticipated that users will find that the Tier 1 analysis is sufficient for most transit projects.

The Tier 2—Weighted-Matrix Delivery Decision Approach provides a means for an agency to further examine delivery methods and document a project delivery decision for an individual project. The Tier 2 approach involves prioritizing project objectives and selecting the delivery method that best aligns with these objectives. In the Tier 2 approach, the user concentrates on a few key parameters affecting the choice of project delivery method, assigns appropriate weights to each parameter, and calculates a score for each competing delivery method. The process of selecting each parameter and assigning the proper weight is described in detail in this guide.

The Tier 3—Optimal Risk-Based Approach leverages current, risk-based, cost-estimating methods that have emerged in transit and highway agencies in the past few years. It is expected that the Tier 3 approach will generally be used only when the completion of the Tier 1 and Tier 2 approaches does not yield a project delivery decision and when a formal risk management process for the project is already in place. It is important to note that using the Tier 3 approach (especially the quantitative analysis) requires considerably greater effort than the effort involved in implementing either the Tier 1 or Tier 2 approaches.

It is recommended that transit agencies use industry professionals from outside the agency to facilitate the implementation of the Tier 3 approach. These professionals should have a thorough understanding of and experience with the type of project the agency is evaluating, the various project delivery methods the agency is considering, and the potential risks associated with the type of project and various project delivery methods under consideration. The use of outside professionals helps to ensure that the appropriate expertise and experience is incorporated into the process. Facilitation of the process by outside professionals helps also to foster that the selection of the most appropriate project delivery method is objective, thereby minimizing the likelihood of a predetermined outcome.

The selection system framework also provides the means to document a project delivery decision in the form of a Project Delivery Decision Report. Regardless of how many tiers of the selection system framework an agency uses to select a project delivery method, the selection system framework forces decision-makers to document their logic as they proceed through the process. The Project Delivery Decision Report will provide a transparent and defensible documentation of the decision process. This documentation is extremely important when explaining a project delivery decision to project stakeholders, particularly if an alternative delivery method is selected. Furthermore, this documentation can be consulted by agencies when they have to make project delivery decisions in the future. The Project Delivery Decision Report format was created to provide agencies with a rigorous documentation format while allowing for maximum flexibility in the choice of delivery method.

This guidebook is meant to be a comprehensive resource for transit agencies embarking on the process of project delivery selection, providing concrete guidance on how to select the most appropriate delivery method for a project and how to document the final project delivery decision in a concise and consistent format.



CHAPTER 1

Overview

Introduction and Purpose

The objective of this guidebook is to help transit agencies evaluate and choose the most appropriate project delivery method for their projects. This guidebook will also help in documenting the process of decision-making and in preparing the outcome in a Project Delivery Decision Report.

The project delivery method is a process by which a project is comprehensively designed and constructed for an owner and includes project scope definition; organization of designers, constructors and various consultants; sequencing of design and construction operations; execution of design and construction; and closeout and start-up. In some cases, the project delivery method may encompass operation and maintenance. Currently available project delivery methods have moved far beyond the traditional design-bid-build (DBB) method. Due to changes in procurement laws, public agencies now share the ability of their private-sector counterparts to acquire construction services via alternative project delivery methods, such as construction management, design-build, and other hybrid systems. In some instances, methods (such as design-build) may include operations and maintenance as well as multiyear warranties.

The approach to developing a project delivery selection system presented herein was to review and analyze relevant literature on project delivery methods and previous work on developing decision support systems for project delivery selection. In addition, an extensive questionnaire was developed for a face-to-face, structured interview with several transit agencies. A list of transit projects was developed and approved by the project oversight panel (see Table 1.1). The authors traveled to the selected project sites and interviewed project directors. The results of the interviews were then analyzed and summarized. Based on the outcome of the literature search and the structured interviews, a set of pertinent issues was identified and studied. These pertinent issues were ones that were thought to have a profound effect on the choice of project delivery method. These issues, in turn, were used to develop the project delivery selection system described in this guidebook.

Selection System Framework

The selection of the project delivery method is a decision that is based on a multitude of issues. In this guidebook, these issues are called “pertinent issues” and have been categorized according to the following groups: project-level issues, agency-level issues, public policy/regulatory issues, lifecycle issues, and other issues. The research team has identified and verified these pertinent issues through a literature search, extensive interviews with various transit agencies across the United States, and discussions between the research team and the project oversight panel.

Table 1.1. List of transit projects for which project directors were interviewed.

Case #	Project	Agency/Location	Project Delivery Method
1	T-REX (Southeast Corridor Light Rail)	Regional Transportation District/ Denver, CO	Design-Build
2	Weber County Commuter Rail	Utah Transit Authority / Salt Lake City to Ogden, UT	Construction Manager at Risk
3	University Line	Utah Transit Authority/ Salt Lake City, UT	Design-Build
4	Medical Center Extension	Utah Transit Authority/ Salt Lake City, UT	Design-Build
5	Greenbush Commuter Rail	Massachusetts Bay Transportation Authority/ Boston, MA	Design-Build
6	Hudson-Bergen Light Rail	New Jersey Transit Hudson, NJ	Design-Build- Operate-Maintain
7	Silver Line Project	Massachusetts Bay Transportation Authority/ Boston, MA	Design-Bid-Build Multi-Prime
8	Portland Mall Project	TriMet/ Portland, OR	Construction Manager at Risk
9	I-205 Light Rail Extension Project	TriMet/ Portland, OR	Design-Build

Based on these pertinent issues, the team has developed a three-tiered project delivery selection system that consists of the following tiers:

- Tier 1—Analytical Delivery Decision Approach,
- Tier 2—Weighted-Matrix Delivery Decision Approach, and
- Tier 3—Optimal Risk-Based Approach.

The Tier 1—Analytical Delivery Decision Approach (Tier 1 approach) provides a framework for agencies to use in defining project goals and examining the advantages and disadvantages of each delivery method within the context of these project goals. The aim of this approach is to help agencies understand project delivery method attributes and determine whether their specific project goals align with the attributes of a particular delivery method. The Tier 1 approach also provides a “go/no-go” review to determine whether one or more project delivery methods should be excluded from the examination.

After completion of the Tier 1 approach, an agency may not have a single, clear, and logical choice for a project delivery method. If this is the case, the agency is advised to move to the Tier 2—Weighted-Matrix Delivery Decision Approach (Tier 2 approach) with the best project delivery method options and create a more detailed analysis to select the final project delivery method. The Tier 1 approach is designed as a simple and straightforward selection method. Any owner, no matter what their level of experience with alternative project delivery methods, will be able to use this tier.

The Tier 2 approach provides a means for the agency to further examine and document a project delivery decision for an individual project. If a project delivery method was not found in the Tier 1 approach, the Tier 2 approach can be used to select a delivery method by prioritizing project objectives and selecting the delivery method that best aligns with these objectives. The Tier 2 approach is based on successful project delivery decision tools developed by academics and professionals over the past 20 years. With the Tier 2 approach, the user concentrates on a few key

parameters that affect the choice of project delivery method, assigns appropriate weights to each parameter, and calculates a score for each competing delivery method. The user can use the material presented in Appendix F for guidance in assigning weights to each parameter.

The Tier 3—Optimal Risk-Based Approach (Tier 3 approach) leverages the current, risk-based, cost-estimating methods that have emerged in transit and highway agencies in the past few years. Most project delivery method decisions will be made through completion of the Tier 1 and Tier 2 approaches. The Tier 3 approach will be applied only when a decision has not been made after completing the Tier 1 and Tier 2 approaches and when a formal risk management process for the project is already in place. It is important to note that the level of effort involved in using the Tier 3 approach (especially the quantitative approach) is considerably greater than the effort required to use the Tier 1 or Tier 2 approaches.

Organization of the Guidebook

This guidebook includes seven chapters and Appendices A and B. Appendices C through H are available on the TRB website at http://trb.org/news/blurb_detail.asp?id=10054. This first chapter provides an overview of the work accomplished and a road map for the user of the guidebook. Chapter 2 describes the characteristics of transit projects, presents the results of the literature search, and provides clear definitions of various project delivery methods. Distinguishing characteristics of each delivery method, its advantages and disadvantages, and legal precedence in project delivery method use are described in Chapter 2. Also, a summary is provided of the existing methodologies for selection of appropriate project delivery methods. In addition, recommendations are made for the appropriate point in the project lifecycle to adopt various delivery methods.

Chapter 3 describes pertinent issues affecting the choice of project delivery method and the advantages and disadvantages of each project delivery method in relation to these issues. There are numerous issues that transit agencies need to consider when selecting a project delivery method. In this research, issues were identified through a literature search, personal experience, case studies, and interviews with project directors of case study transit projects. Pertinent issues are categorized as follows:

- Project-level issues,
- Agency-level issues,
- Public policy/regulatory issues,
- Lifecycle issues, and
- Other issues.

These issues and their interactions with different project delivery methods are presented in the form of a descriptive pro/con analysis. The analysis is based on the trends found in the research team's interviews with construction directors at various transit agencies and is supported by quotations from relevant literature.

Chapters 4, 5, and 6 describe the Tier 1, 2, and 3 approaches of the project delivery selection framework, respectively. In order to facilitate and streamline the application of the approaches in these tiers, blank versions of the tables from these chapters are reproduced in Appendices C, D, E, and G, which are all available on the TRB website at http://trb.org/news/blurb_detail.asp?id=10054. The idea is that the user will download/print these blank tables and use them to go through the three tiers in sequential order. Other appendices contain support material for the guidebook. Appendix A contains a list of sources referenced in this guidebook. Appendix B contains a glossary of important terms used in the guidebook. Appendix F describes various methods of assigning

numerical weights to competing parameters. This material will be useful to the guidebook user in applying the Tier 2 approach. Appendix H contains the application of the project delivery selection system to a hypothetical project.

It is the authors' belief that this guidebook is a comprehensive resource for a transit agency trying to select the most appropriate project delivery method and to document the selection process and ultimate decision in a concise and easy-to-understand format. It is recommended that transit agencies use industry professionals from outside the agency to facilitate the implementation of the methodology contained in this guidebook. These professionals should have a thorough understanding of and experience with the type of project that the agency is evaluating, the various project delivery methods that the agency is considering, the potential risks associated with the type of project the agency is evaluating, and the various project delivery methods being considered. The use of such professionals will ensure that the appropriate expertise and experience is incorporated into the process. Facilitation of the process by outside professionals should also foster an objective selection of the most appropriate project delivery method, thereby minimizing the likelihood of a predetermined outcome.



CHAPTER 2

Background and Definitions

Distinguishing Characteristics of Transit Projects

Several types of project delivery methods are currently available to the owners of publicly funded transportation projects in the United States. It is important—especially in the case of large, complicated transportation projects—to select the most appropriate project delivery method. Contractual relations, contemporary laws and regulations, owners’ perceptions of risks, awarding mechanisms, and method of payment all influence the selection of a project delivery method. This guidebook in no way advocates one project delivery method over another. In fact, it is the expressed purpose of this effort to assist transit agencies in choosing the delivery method, from among the many project delivery methods, that is most appropriate for a particular project. In the material that follows, alternative project delivery methods will be compared with the traditional design-bid-build (DBB) project delivery method, which functions as a benchmark against which all other methods can be evaluated. The literature shows that the use of alternative project delivery methods can accrue benefits for owners. However, the benefits of alternative project delivery methods presented in the literature occur most often across a population of projects rather than on an individual project. Thus, the reporting of benefits found in the literature should not be misconstrued as advocating one project delivery method over another. All project delivery methods have yielded both successes and failures. Selecting the wrong project delivery method is often a significant driver of project failure. Therefore, the reader should understand the results of the research reported herein as evidence that a given project delivery method may be used successfully on a specific set of projects, not as evidence that any particular project delivery method is inherently superior to all others.

Before describing various project delivery methods, it is important to note the features of major transit projects that distinguish them from other transportation projects. Transit projects are larger projects, usually in excess of \$100 million. Transit projects, especially projects with fixed-guideway systems, usually consist of at least two large contracts: (1) civil and (2) systems. The nature of these two contracts and the specialization required for each are such that usually two different entities deliver these contracts. This circumstance makes coordination between these two entities of paramount importance to project success. Generally, in DBB projects, the owner hires a construction manager (CM) (this construction manager is a representative of the owner, i.e., the agency CM, as opposed to the construction manager at risk [CMR]) to coordinate these two separate contracts and manage the work. In design-build (DB) projects, the design-builder often subcontracts to separate systems and civil contractors or forms a joint venture with them. Another feature of transit projects is that they are usually built in major urban population centers. This increases the complexity of dealing with various stakeholders. Therefore, a major criterion in choosing a project delivery method for a transit project is the delivery method’s ability to accommodate the needs of various stakeholders in a complex environment.

Whenever a commuter rail project is considered, a freight line may be in the mix where the owner will have to share the line with *temporal* separation or *track* separation. This circumstance makes coordination with the railroad company owning the freight line extremely important. The importance of reaching agreements with the railroad company and clarifying the details of the work and the responsibilities of the various parties cannot be overemphasized. The railroad company usually wants to do the track work with its own forces on a cost-reimbursable basis, and this puts all the risk on the owner. This also increases the constructor's risk because its work may be impacted by the railroad. This makes early involvement of the construction contractor very important to project success. Also, the railroad company tends to do the work at its own pace while considering project milestones; as a general rule, the agency does not enjoy the same degree of control that it exerts over the constructor with the railroad company.

Another distinguishing characteristic of transit projects is that typically they incorporate features that are unusual in an engineering project, and thus transit projects may require the involvement of professionals from the fields of architecture, landscape architecture, and interior design, as well as engineering. The integration of "vertical" construction features (e.g., parking structures and transit stations) with "horizontal" construction features (e.g., track beds, bridges, and roadway elements) creates a need for a comprehensive set of design and construction services that is not normally found in transportation projects. Additionally, transit agencies' need to integrate their facilities with other transportation modes demands another comprehensive set of design and construction service providers and requires a more flexible approach to design and construction than is required by single-mode transportation projects. These characteristics of transit projects drive the need for a "toolbox" of project delivery methods that permits a transit agency to select the appropriate project delivery "tool" based on the technical demands of a given project.

Transit projects are not usually money makers (unlike some toll roads in the highway sector). Therefore, it is difficult to generate interest in potential public-private partnerships. Financial institutions, which are sometimes interested in supporting toll road and bridge projects, are usually not interested in transit investment, although that may change in the future.

Finally, federal support for transit projects, often crucial to bringing the project into being, depends on specific steps that are not similar to other transportation projects. The Federal Transit Administration (FTA) plays an important role in this process. Various transit agencies compete for federal dollars by preparing specific reports to the FTA. Depending on the rating that a project receives, it may be permitted to move to the next development stage. The owner agency must meet certain requirements to advance from project planning to final design and finally to construction. If, during various phases of project development and as project scope becomes more accurate, the rating of the project falls below the required threshold, there is a possibility that the project may be discontinued. The burden is on the owner agency to ensure that the project remains viable and meets federal requirements.

Evolution of Current Alternative Delivery Methods in Transit Projects

Public procurement law has historically limited public agencies to using DBB construction project delivery only. The current wide range of project delivery methods is a relatively recent development for publicly funded transit projects in the United States. The development of the public procurement laws limiting public agencies to use of the DBB project delivery method can be traced in part to the Brooks Act. Enacted in 1972, the Brooks Act (Public Law 92-582) states that design services on federally funded projects in the United States should be procured on the basis of qualifications only. Alternatively, numerous laws and statutes throughout the

United States have limited the procurement of constructors to the lowest responsible, responsive bidder. The combination of these two procurement practices has helped solidify the proliferation of DBB in the public sector. This method was the traditional transportation project delivery method until the introduction of DB and design-build-operate-maintain (DBOM) in the Intermodal Surface Transportation Efficiency Act of 1991.¹ Another step was taken in 1996, when the Federal Acquisition Reform Act explicitly authorized the use of DB for federal projects. After that, the Transportation Equity Act for the 21st Century (TEA-21), Public Law 105-178, allowed state departments of transportation (DOTs) to award DB contracts if the enabling state-level legislation was in force. Subsequent to the successful use of DB in several projects, many states passed new legislation and codes to allow alternative project delivery methods, i.e., DB and CMR. Adding the responsibility of operation and maintenance to DB projects created another delivery method, DBOM. The differences among delivery methods, the unique characteristics of each project, and the vast variety of parameters affecting the selection of a project delivery method, have made selection of a project delivery method complicated for many owners. The purpose of this guidebook is to facilitate the decision-making process by clarifying the differences among the project delivery methods and proposing a structured decision-making approach that incorporates all the pertinent parameters.

Definitions of the Delivery Methods

Since the early 1980s, owners of construction projects have been putting greater pressure on the architecture/engineering/construction (A/E/C) industry to improve quality, reduce cost, and, more importantly, compress the period from project conception to project completion for all kinds of public and private facilities. As a result, both owners and the industry have experimented with various forms of project delivery with varying degrees of success. The adoption of alternative project delivery methods has added to the challenge of selecting the method most appropriate to the owner's needs and desires as well as the project's technical requirements. This report provides a set of standard project delivery definitions to help communicate the technical requirements for bringing a new project from the owner's conception to operation and finally to decommissioning.

Project delivery method is a term used to refer to all the contractual relations, roles, and responsibilities of the entities involved in a project. TxDOT defines "project delivery method" as follows: "A project delivery method equates to a procurement approach and defines the relationships, roles and responsibilities of project team members and sequences of activities required to complete a project. A contracting approach is a specific procedure used under the large umbrella of a procurement method to provide techniques for bidding, managing and specifying a project" (Walewski, Gibson, and Jasper 2001). The Associated General Contractors of America (AGC) (2004) defines "project delivery method" as "the comprehensive process of assigning the contractual responsibilities for designing and constructing a project. A delivery method identifies the primary parties taking contractual responsibility for the performance of the work." *Thus, different project delivery methods are distinguished by the way the contracts among the owner, the designer, and the builder are formed and the technical relationships among parties within those contracts.*

The Construction Industry Institute maintains that there are really only three fundamental project delivery methods: DBB, DB, and CMR (Construction Industry Institute 1997). While

¹In 1992, the FTA announced the initiation of a *Turnkey Demonstration Program* (Federal Register Vol. 57, No. 157, 8/13/92) and later selected five projects for DB implementation. These projects were (1) the Los Angeles Union Station Intermodal Terminal, (2) Baltimore Light Rail Transit, (3) San Juan Tren Urbano, (4) Bay Area Rapid Transit in San Francisco, and (5) Hudson-Bergen Light Rail Transit.

there are a multitude of names for project delivery methods throughout the industry, the Construction Industry Institute is essentially correct. Therefore, this report will focus its information on those three methods.

The AGC also distinguishes between the *delivery method* and the *management method*. The management method “is the mechanics by which construction is administered and supervised” (AGC 2004). This function is either retained by the owner agency or is outsourced. An example of outsourcing the management process is to hire an agency CM to represent the owner’s interests during design and construction. Theoretically, any management method may be used with any delivery method. For example, an owner may hire an agency CM to manage a DBB, DB, or even a CMR project.

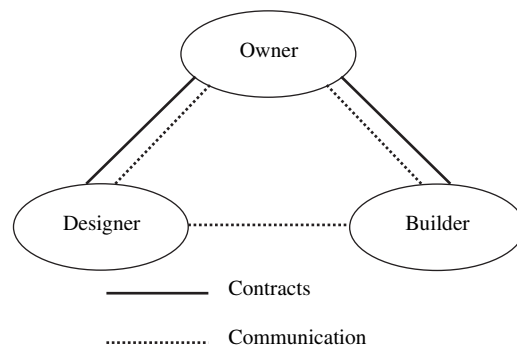
Graphics displaying the contractual relationships among the major stakeholders and their lines of communication are presented in Figures 2.1 through 2.3 to assist the reader in putting the contents of this report into proper context. Note that the lines of communication shown in the figures represent the ability to exchange information through formal and informal requests for information among the various entities in the project.

Design-Bid-Build (DBB)

DBB is the traditional project delivery method. In this method, an owner retains a designer to furnish complete design services and then advertises and awards a separate construction contract that is based on the designer’s completed construction documents. The owner is responsible for the details of design and warrants the quality of the construction design documents to the construction contractor.

Figure 2.1 shows that the owner is situated squarely between the designer and the builder in the DBB project delivery method. In DBB, the owner “owns” the details of design during construction and, as a result, is financially liable for the cost of any design errors or omissions encountered in construction; this is called the “Spearin Doctrine” (Mitchell 1999). The construction phase of DBB projects is generally awarded on a low-bid basis. There is no incentive for the builder to minimize the cost of change orders in this delivery method. In fact, there can be quite the opposite effect. A builder who has won a project by submitting the lowest possible bid may need to look to post-award changes as a means of enhancing profit on the project. One author states that the defining characteristics of DBB are as follows (Bearup, Kenig, and O’Donnell 2007):

- There are separate contracts for design and construction.
- Contractor selection is based entirely on cost.
- Design documents are 100% complete.



(Adapted from American Institute of Architects 1996.)

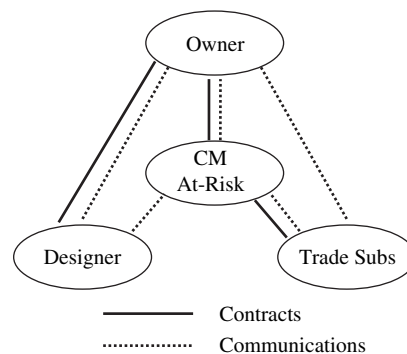
Figure 2.1. Design-bid-build.

Despite the general definition of DBB given above, DBB projects can also be awarded on a negotiated basis and a best-value basis (Scott et al. 2006); however, DBB transit projects awarded in either of these two ways usually require FTA approval and frequently violate local laws. For projects awarded on a negotiated basis or a best-value basis, the probability that the project will be awarded to a builder who has submitted a mistakenly low bid is reduced. Additionally, in both cases, the builder will be motivated to complete the project in a such a way that it be invited back to do the next negotiated contract or that will reflect well in the next best-value selection. Regardless of the award method, DBB involves less builder input to the design than DB or CMR. Thus, the owner must rely on the designer or agency CM (and not the builder) for a constructability review, if there is any at all. Nonetheless, in this method the owner has full control over the details of design, which may be a requirement for some complex projects.

DBB is also characterized by the greatest amount of familiarity in both the design and construction areas. All qualified designers can compete for the design without restriction. Additionally, all constructors who can furnish the requisite bonding and meet any agency prequalification criteria are also able to compete without constraint. Design subconsultants and construction trade subcontractors are also able to compete with minimal restrictions. Finally, as DBB is generally viewed as the traditional project delivery method in the United States, it is well understood and accepted by owners and members of the design and construction industries.

CMR or Construction Manager/General Contractor (CM/GC)

CMR projects are characterized by a contract between an owner and a construction manager who will be at risk for the final cost and time of construction. In this agreement, the owner authorizes the construction manager to handle the construction phase and give inputs during the design development. The idea of CMR is to furnish professional management of all phases of a project life to an owner whose organization may not have those capabilities (North Carolina State Construction Office 2005). Typically, CMR contracts contain a provision in which the CMR stipulates a guaranteed maximum price (GMP) above which the owner is not liable for payment. Often, these contracts include incentive clauses in which the CMR and owner can share any cost savings realized below the GMP. Some states, like Oklahoma, take the GMP and convert it to a firm-fixed price contract and administer the construction as if it were a traditional DBB project thereafter (AIA 2005). CMR contracts can contain provisions for the CMR to handle some aspects of design, but generally, the owner retains the traditional responsibility by keeping a separate design contract and furnishing the CMR with a full set of plans and specifications upon which all construction subcontracts are based (see Figure 2.2). The CMR will usually be



(Adapted from American Institute of Architects 1996.)

Figure 2.2. Construction manager at risk.

paid for furnishing preconstruction services such as cost engineering, constructability review, and development of subcontractor bid packages. According to AGC (2004), the defining characteristics of the CMR are the following:

- The designer and the CMR hold separate contracts with the owner.
- The CMR is chosen on the basis of criteria other than just the lowest construction cost, such as qualifications and past performance.

According to Bearup, Kenig, and O'Donnell (2007), additional defining characteristics are the following:

- The CMR contracts directly with trades and takes on “performance risk” (cost and schedule commitments);
- The schedule allows for overlapping design and construction;
- The owner procures preconstruction services from the CMR; and
- The owner expects the CMR to provide GMP and to commit to a delivery schedule.

A final defining characteristic, noted in AIA's “Construction Manager at-Risk State Statute Compendium,” is that “transparency is enhanced, because all costs and fees are in the open, which diminishes adversarial relationships between components working on the project, while at the same time eliminating bid shopping” (AIA 2005, p. 1).

Constructability and speed of implementation are the major reasons that an owner would select the CMR method (3D/International, Inc. 2005). Additionally, CMR greatly facilitates phased construction when that is a requirement for a given project. Unlike DBB, CMR brings the builder into the design process at a stage in which definitive input can have a positive impact on the project. “The CM[R] becomes a collaborative member of the project team. Preconstruction services include budgeting, cost estimating, scheduling, constructability reviews and value engineering studies.” (3D/International, Inc. 2005, p. 4). In CMR, the CM essentially becomes the general contractor at the time the GMP is established. While some experts attempt to distinguish between CMR and CM/GC, due to perceived levels of risk, many agencies use these terms more or less interchangeably.² The CMR can and is expected to provide realistic project cost estimates early in the project lifecycle. It is anticipated that after a certain amount of the design is complete and the project is sufficiently defined, the owner will enter into a contract with the CMR for providing construction services. Many states reserve the right to go out for bid if they think that the CMR's price is not competitive (Minchin, Thakkar, and Ellis 2007).³ The timing of GMP negotiations varies among different agencies. In many cases, at least 60% of the design is completed before a GMP is established. In some cases, the design is 80 to 90% complete before a GMP can be effectively negotiated with the CMR. The timing of GMP negotiations depends on project complexity, agency rules, and external conditions such as inflation and the expected level of competition among subcontractors. In general, the CMR may feel that committing to a GMP while all the details of the design are not defined may involve incurring undue risk. Also, some agency rules may hamper early GMP negotiations. For example, if an agency insists on requiring a fully open competition for hiring of subcontractors, then negotiating an early GMP may be more difficult because some subcontractors may be reluctant to give their prices without

²According to AGC (2004), there has been some confusion about the terms *CM at-risk* and *CM/GC* because of the assumption that the phrase “at-risk” connotes cost guarantee. Even if there are no cost guarantees, the CM is still at risk because the CMR holds the trade contracts (warranting the performance of the work). Because of this, some users choose to avoid the debate over the term “at-risk” and instead use the term *CM/GC* (p. 8).

³There are two types of CM arrangements, namely *agency CM* and *CM at-risk*. Our emphasis in this work is *CM at-risk*. Agency CM is not a project delivery method because the CM is not contractually responsible for delivering the project. The role of agency CM is purely advisory, and thus, the agency CM is usually not at risk for the cost and schedule of building the project.

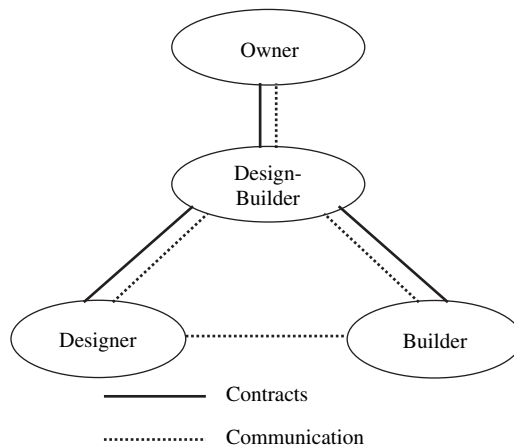
a 100%-complete design. This in turn makes the CMR hesitant to provide a reasonable GMP for fear that money will be lost if the subcontract bids come in too high.

As the design selection process in CMR virtually mirrors the design process in DBB, implementing CMR does not inherently restrict competition among designers and design subconsultants (AIA 2005). Owners, at their own discretion, occasionally require the designer in a CMR project to have previous CMR experience, which may result in fewer qualified proposers. As the constructor is selected on the basis of qualifications and past performance and must also have the capability to perform preconstruction services, CMR project delivery can constrain competition to those constructors that have previous CMR experience. Most public CMR laws require competitively bidding out the construction trade subcontract work packages. The central idea of CMR is to get the advantage of price competition in the subcontract work packages combined with the qualifications-based selection of the GC as CMR.

Design-Build (DB)

Design-build is a project delivery method in which the owner procures design and construction services in the same contract from a single legal entity referred to as the design-builder. A variety of methods exist for selecting the design-build constructor. Common methods are the one-step and the two-step processes. The one-step process provides for competitive evaluation of technical proposals, with the contract award decision based on best value to the owner agency. The determination of best value is based on a combination of technical merit and price. The two-step process separates the technical proposal from the price. This method typically uses request for qualifications (RFQ)/request for proposal (RFP) procedures rather than DBB invitation-for-bid procedures. There are a number of variations on the DB process, but all involve three major components. First, the owner develops an RFQ/RFP that describes essential project requirements in performance terms. Second, proposals are evaluated. Finally, with evaluation complete, the owner must engage in some process that leads to contract award for both design and construction services. The DB entity is liable for all design and construction costs and must usually provide a firm, fixed price in its proposal (El Wardani, Messner, and Horman 2006; Ibbs, Kwak, and Odabasi 2003; and Graham 2001).

Figure 2.3 shows that from the owner's standpoint, DB simplifies considerably the project's chain of responsibility. As in CMR, the builder has early constructability input to the design process. As the owner no longer owns the details of design, the owner's relationship with the



(Adapted from American Institute of Architects 1996.)

Figure 2.3. Design-build.

design-builder must be based on a strong degree of mutual professional trust (Beard, Loulakis, and Wundram 2001). The design-builder literally controls this project delivery method. As a result, the DB project delivery method has proven to be highly successful in compressing the project delivery period and is therefore often used for “fast-track” projects (SAIC, AECOM Consult, and University of Colorado at Boulder 2006).

Bearup, Kenig, and O’Donnell (2007) state that the defining characteristics of DB are as follows:

- A single point of responsibility,
- A schedule that allows for overlapping design and construction,
- A design-builder that furnishes preconstruction services during the project design, and
- An owner that expects the design-builder to provide a firm, fixed price and to commit to a delivery schedule.

DB creates the greatest constraint on competition in that all parties to the DB contract are selected using qualifications and past performance as major selection factors. Because the owner transfers responsibility for all design and construction in the DB contract, it also loses the ability to foster competition between design subconsultants and construction trade subcontractors. There is typically no requirement to competitively bid for subcontract work packages, and often the scale, complexity, and speed at which DB projects are executed precludes firms with no DB experience from being able to participate. Additionally, as the contract is awarded before the design is complete, DB can also create an unfavorable risk environment for subcontractors whose cost-estimating systems lack the sophistication to price work without completed construction documents.

There are many variations on the DB method. Design-build-operate-transfer, design-build-operate-own (sometimes called lease-back), and DBOM, all require the DB contractor to remain with the project after construction is complete. DBOM is very similar to DB except that the DBOM contractor assumes the operation and maintenance risks of the project and is responsible for operating the new facility according to a set of regulations and codes for a determined duration (Wiss, Roberts, and Phraner 2000; Kessler 2005).

Statutory Authorization of Delivery Methods in Various States

DBB has traditionally been used throughout the United States, and all 50 state codes have given full authority to transit agencies to use this method in their projects. Alternative delivery methods do not have this clear statutory support. Some states do not allow transit entities to use alternative delivery methods, some have given one-time authority to use an alternative method for a special project, a group of states have put some limits on the application of alternative delivery methods, and a few states require transit agencies to obtain extra approval in order to use alternative methods. Developing pilot programs is a common approach in some states for implementing previously unauthorized project delivery methods, particularly DB.

In order to update information on the legal status of alternative project delivery methods in various states, a thorough literature search was conducted on the laws of all 50 states. Several relevant keywords were searched using the LexisNexis search engine. All the state codes and statutes that deal with project delivery in transportation projects were examined. The results were then compared with the existing surveys of legal codes available in the literature (e.g., see Smith and Davis 2006 and AIA Minnesota 2006). The research herein shows that 37 states permit the use of DB in their transportation projects, leaving the agencies of 13 states without the authority to do so. The application of CMR is not authorized in 31 states, and only 14 states have

fully authorized DOTs to use this delivery method. Five states allow the use of CMR with some restrictions or after obtaining extra approvals (Ghavamifar and Touran 2008). It should be noted that the laws governing the legality of alternative project delivery methods are evolving, and therefore the information given herein on the legality of alternative project delivery methods should be understood as subject to change. Also, while some state DOTs are permitted to use alternative delivery methods, it is not clear whether those states' transit agencies are allowed to use alternative delivery methods. The purpose of the literature search was to provide an overall picture of the legal status of using various project delivery methods for transportation projects in the United States at the time this report was prepared. Each public agency considering the use of a specific delivery method should check the legality of the method carefully.

FTA's requirements for third-party contracting, described in *Circular 4220.1E* (FTA 2003), are sufficiently flexible to allow the agencies to select their contractors through competitive bidding and/or competitive proposal/RFP (price and other parameters considered). For DBB, *Circular 4220.1E* allows the procurement of services through sealed bidding or competitive negotiations. For DB, the grantees must procure DB services through qualifications-based competitive proposal procedures. So it seems that if a specific state's laws allow an alternative project delivery method, the federal regulations will not prevent the agency from undertaking such procurement.

Existing Selection Approaches for Project Delivery Methods

Selection of the appropriate alternative project delivery method is a complex decision-making process. The decision should be made as early in the design phase as possible, preferably in the project scoping process and certainly before the final construction estimates for the project are ready. The decision will be made when the owner still has little information about the exact outcome of the project and the project plans are not detailed enough to be reliable grounds for judgment about the project. In this situation, having a framework for decision-making is vital for transit projects. This framework should be simple, comprehensive, rational, and objective. The literature review of this research report shows that some experts have concentrated on this issue and have developed a list of criteria and some decision-making frameworks (Debella and Ries 2006; Garvin 2003; Gordon 1994; Ibbs, Kwak, and Odabisi 2003; Konchar and Sanvido 1998; Mahdi and Al-Reshaid 2005; Oyetunji and Anderson 2006). Several of these researchers have chosen specific projects and have based their selection methodology on the characteristics of those projects.

The relevant literature can be divided into two groups: (1) literature that compares project delivery methods on the basis of observed performance measurements collected from a group of projects and (2) literature that provides a list of criteria and a framework for decision-making.

One of the best examples of the first kind of literature is a paper by Konchar and Sanvido (1998) in which a set of criteria is defined for a performance comparison of different delivery methods (i.e., DB, DBB, and CMR) in 351 building projects. These criteria are mostly objective and measurable, such as cost growth, construction speed, and schedule growth. Some criteria are also defined to incorporate the quality performance of the delivery methods, such as difficulty of facility start up, number and magnitude of call backs, and operation and maintenance costs. According to Konchar and Sanvido (1998, p. 9), "when all other variables were held constant, the effects of project delivery system indicated design-build projects to be at least 5.2% less than design-bid-build projects and 12.6% less than construction management at risk projects on average in terms of cost growth." Konchar and Sanvido (1998) divided the projects into six different groups (e.g., light industrial, complex office, and heavy industrial) in order to see clearer trends in each group. Taking this into account, the paper does not have enough data to distin-

guish between the performances of different delivery methods in transit projects. However, two studies comparing DB and DBB project performance in the federal building sector did make direct comparisons (Allen, Gransberg, and Molenaar 2002; Gransberg, Badillo-Kwiatkowski, and Molenaar 2003). One study compared 54 DBB projects with 34 DB projects and discovered that DB projects had 16.4% less cost growth and 19.0% less time growth than similar DBB projects (Gransberg, Badillo-Kwiatkowski, and Molenaar 2003). Another study, which looked at 110 Navy projects, also found that DB projects performed more efficiently, with 18.0% less cost growth and 60.0% less time growth (Allen, Gransberg, and Molenaar 2002). Additionally, a recent NCHRP study of best value contracting also furnished a direct comparison of the performance of transportation project delivery methods (Scott et al. 2006). While that study did not include CMR projects, it did include DBB projects awarded on a best value basis, which parallels the CMR delivery method. The NCHRP study found that DB projects had 4.7% less cost growth and 9.3% less time growth than DBB. Best value projects had 2.0% less cost growth and 18.5% less time growth than DBB. Other researchers, such as Debella and Ries (2006) and Ibbs, Kwak, and Odabisi (2003), have used a methodology similar to that of Konchar and Sanvido (1998), but they have narrowed down the scope of their research either to special kinds of projects or fewer performance measures.

The second kind of literature mentioned above, literature that provides a list of criteria and a framework for decision-making, has focused on the decision-making process. This literature proposes mechanisms for decision-making and defines the necessary criteria and frameworks so that the most important project parameters are identified and used in the decision-making method. The frameworks are primarily intended to be simple, rational, and comprehensive. They range from basic flowchart methods (Gordon 1994) to more sophisticated processes based on methodologies such as multiple linear regression, the Analytical Hierarchy Process (AHP) (Mahdi and Al-Reshaid 2005), or the Simple Multi-Attribute Rating Technique with Swing Weights (SMARTS) (Oyetunji and Anderson 2006).

Gordon (1994) created a procurement method selection model that uses a flowchart for selecting the best contracting method. Within the flowchart are a number of drivers that direct the owner's attention to the most important issues in project delivery method selection. A multimedia education compact disc and delivery selection tool have been developed (Loulakis 2005). The tool integrates training on project delivery selection systems with a matrix-style decision framework that owners can complete to make an informed delivery selection. Skitmore and Marsden (1988) presented a multi-attribute analysis technique and a discriminant method for selecting delivery methods. The multi-attribute method uses utility factors to evaluate the suitability of a delivery method with respect to a client's priority criteria. Kumaraswamy and Dissanayka (1998) propose a client advisory system with an expert system front end that will gather project information and model the project profile to generate a list of delivery options. Finally, Oyetunji and Anderson (2006) use a SMARTS approach for delivery selection. The approach utilizes a matrix that has 20 criteria, each with a given weight. The owner rates these criteria and goes through the required calculation, which gives a single rank to each delivery method. The delivery method with the highest rank should be chosen for the project.

Looking at both kinds of literature, one finds that many of the important parameters that affect the decisions early in the project fall into one of four groups: project-related parameters, agency-related parameters, legal parameters, and lifecycle issues. Project-related parameters are those parameters that pertain to project duration: estimated cost, quality level, risks, limits on schedule growth, complexity, and so forth. Agency-related parameters mainly consist of the status of the agency; the role of a project in the strategies of the agency; and the organization of the agency, i.e., availability of funds, sophistication of the agency's employees, flexibility needs in the construction phase, level of risk assumption, importance of preconstruction services, and quality level expectation. The legal parameters mainly cover legal and contracting issues, such as statutory authority to

Table 2.1. The timing of project delivery method selection.

Project delivery method	At the end of conceptual design	At the end of preliminary engineering	At the end of final design	Construction
DBB	■	■	□	NF
CMR	■	□	□	NF
DB	■	■	NF	NF
DBOM	■	■	NF	NF

■ = Desirable
□ = Feasible
NF = Not feasible

use alternative project delivery methods, the level of competition in the market, and the permits needed for the project. Lifecycle issues cover the costs of maintaining and decommissioning the facility and the ability to minimize the energy and environmental effects of the project.

In the parameters mentioned above, the ability to transfer the risks of a project to entities other than the owner is a characteristic that is related to both the project and the owner agency. This parameter includes the level of risk and uncertainty of the project and the ability of the owner to assume the risks or transfer them (risk-averse or risk-prone agency). Project delivery methods have different mechanisms for risk distribution among the entities involved. In summary, the existing body of knowledge in the area of project delivery, along with specific information collected on transit projects during interviews, provides a solid foundation for developing a new selection system for project delivery methods that is tailored to the needs of transit owners.

Timing of Project Delivery Method Selection

Transit projects, especially those that receive federal funds, follow several steps during their development. These steps can be summarized as follows:

- Alternative Analysis—Draft Environmental Impact Statement (AA/DEIS),
- Final Environmental Impact Statement (FEIS), and
- Full Funding Grant Agreement (FFGA).

The first two steps roughly coincide with conceptual design (5 to 15% of the design effort) and preliminary engineering (25 to 30% of the design effort). The timing of the FFGA, which represents the federal government's commitment to fund the project, depends on the project delivery method; the FFGA can come at the end of preliminary engineering or at final design.

In selecting a project delivery method, the owner should realize that the window of opportunity to select some methods will close as the project moves through various stages of development. Table 2.1 maps project delivery method selection with project development phase. It can be seen that selecting a project delivery method other than DBB should be done relatively early. Most of the benefits can be realized by engaging the constructor as soon as possible. The decision point for project method delivery selection should not be confused with the time that the constructor is engaged. As an example, an owner may decide to engage a DB contractor at the end of preliminary engineering or even later in order to clarify the project scope and reduce the uncertainty. However, the owner should have decided on the type of delivery (e.g., DB) much earlier, so that the design documents can be developed to properly accommodate the type of delivery method.

Advantages/Disadvantages of Each Project Delivery Method

Introduction

There are numerous issues that transit agencies need to consider when selecting a project delivery method. In this chapter, the information collected during this research on pertinent issues is synthesized for use in Tiers 1 and 2 of the selection system presented later in the guidebook. These pertinent issues and their interactions with different project delivery methods are presented in the format of a descriptive pro/con analysis. The issues were identified through a literature search, the personal experience of the research team, case studies, and interviews with the project directors of the case study transit projects. Please see the TCRP Project G-8 final report, published as *TCRP Web-Only Document 41: Evaluation of Project Delivery Methods*, for presentation and discussion of the literature search, case studies, and interviews with the project directors of the case study transit projects. *TCRP Web-Only Document 41* is available on the TRB website at http://trb.org/news/blurbs_detail.asp?id=9886.

The issues are organized into the following categories:

- Project-level issues,
- Agency-level issues,
- Public policy/regulatory issues,
- Lifecycle issues, and
- Other issues.

In this chapter, each issue is first defined and then the advantages/disadvantages of each delivery method are explained. The analysis is based on the trends found in the interviews (which are cited using brackets) and is supported by quotations from relevant literature. A list of references used is provided in Appendix A. It should be noted that there are overlaps and redundancies in the issues and how they are affected by the choice of delivery method. While there was an effort to separate issues so that redundancy and double counting would be minimized, it was not possible to treat the issues completely independently.

Project-Level Issues

Project-level issues are those that are specific to the project under consideration and include such items as project size, cost, and schedule, as well as project risk management, risk allocation, and possible certification for sustainable design and construction (e.g., LEED certification).

Issue 1: Project Size

Project size is determined by transit project dollar value and physical dimensions. Transit projects are usually larger than \$100 million in value; however, transit agencies sometimes get

involved in smaller projects, such as construction of parking garages. It seems that project size would strongly influence the choice of delivery method. However, current literature and the case studies conducted in this research document successful projects in a range of sizes using DBB, CMR, or DB project delivery methods. A possible exception seems to be DBOM, which has been considered mainly for larger transit projects. Because each of the three main delivery methods (DBB, CMR, and DB) can be applied to projects of all sizes, it seems clear that project size needs to be considered in combination with other issues, such as schedule, agency staffing, and risk management in order to determine an appropriate project delivery method.

Issue 2: Cost

This issue includes several aspects of project cost, such as ability to handle budget restrictions, early and precise cost estimation, and consistent control of project costs. Below, each project delivery method is evaluated with regard to cost control and cost estimation.

DBB

This delivery method may provide a cost benefit because it includes marketplace competition, which increases the likelihood of receiving low bids when the project is bid out. Furthermore, having a complete design before awarding the project increases certainty about cost estimates because the owner has the engineer's estimate as well as several estimates submitted by the bidders. The level of cost certainty increases even more when the payment method is lump sum. Another cost advantage of DBB is that transit agencies can choose unit price bids as the payment method when the project line items and their cost estimates are known but the quantities are not known with certainty. This payment method allows the constructor to bid on unit prices rather than the total price. In this way, the constructor does not have the risk of fluctuating quantities, while the owner does not have to pay for constructor contingencies included in the bid because of quantity uncertainties.

CMR

This delivery method has two main characteristics relevant to project cost: (1) it is usually combined with a GMP payment mechanism and (2) the constructor is involved in the project before bidding the project out. These two characteristics directly affect the performance of this delivery method with regard to project cost. An advantage is that there may be cost savings because of early constructor input to the project ("CM/GC White Paper, Public Contracting Coalition" 2000) and competitive pricing through "open book" accounts (Irwin 2003). Usually, the owner can negotiate and set the GMP at about 60% of design completion (AGC 2004). If the project requires the services of major trade or specialty subcontractors, bringing them on board during the design phase is recommended. This way, the project team can benefit from their knowledge and experience and establish a more reliable budget early on. The cost drawback to this project delivery method is losing the opportunity to bid the work out. Potential schedule compression by some overlap between design and construction can be an advantage to CMR if the inflation rate will significantly escalate project cost. Also, the owner will know the estimated cost earlier in the project lifecycle than a project owner using the traditional DBB method would. At the same time, owners using the CMR delivery method need to closely monitor costs on the project because of the cost-reimbursable payment method (Walewski, Gibson, and Jasper 2001). Also, it is somewhat difficult to evaluate the validity of the GMP compared to a traditional bid process.

DB

DB performs relatively well when there is budget restriction (Gordon & Rees LLP 2005) because it reduces the potential of cost overruns due to claims and delays. *TCRP Research Results Digest 53* shows that there are fewer cost overruns in DB (Harrington-Hughes 2002). Another study shows

that DB outperforms CMR in operation and maintenance costs, unit cost, and cost growth (Konchar and Sanvido 1998). The DB method can also provide the owner with a firm, fixed price earlier in the design phase. Through the use of a lump sum contract in a DB procurement, the owner can establish a firm cost estimate relatively early in the process (Walewski, Gibson, and Jasper 2001; Gransberg and Barton 2007a). The AASHTO Procurement Guide states that DB gives earlier cost certainty and has less cost growth than traditional DBB (Molenaar et al. 2005).

DBOM

Early certainty in project costs and mainly operation and maintenance costs is a direct result of awarding operation and maintenance to the constructor of the project. The constructor generally cannot seek additional compensation for excessive operations or maintenance costs resulting from inadequate design since it is a responsibility of the DB entity. On the other hand, it can be difficult to estimate operation and maintenance costs at the early stages of a DBOM project (when the price proposals are being evaluated) since in most cases the project is only at a 15 to 30% design level. This difficulty can lead to increased contingencies, which result in higher prices if the entities submitting proposals are required to price operation and maintenance in response to the DBOM RFP because the constructor will have to cover all risks and uncertainties.

Awarding the project with a DBOM contract extends the scope of the contract. This expansion in the contract scope allows the constructor to bring some innovations to the project in order to decrease the project costs (Kessler 2005).

Issue 3: Schedule

This issue involves two aspects of a project schedule: controlling the schedule (keeping the duration of the project within the expected timeframe) and shortening the schedule. In other words, in this section, each project delivery method is evaluated with regard to schedule control and schedule compression.

DBB

DBB has a sequential process and usually does not have room for significant schedule compression. This sequential process results in a longer schedule than is required by DB, CMR, and DBOM (Walewski, Gibson, and Jasper 2001; Gordon 1994). A longer schedule is the price that is paid for the owner to have the project designs completed prior to the project award. DBB schedule growth also tends to be larger than the schedule growth of the other delivery methods. *NCHRP Report 561* showed that DBB projects had the greatest average time growth (Scott et al. 2006). Inability to compress the schedule in DBB has been one of the main reasons that owners choose other delivery methods. One way of compressing DBB projects is to break down the program into several packages and let each package separately [Silver Line Project]. One problem with this approach seems to be the coordination effort required and the issue with abutting primes.

CMR

Having a constructor on board helps the project team develop a more practical and realistic schedule for the project. A study has shown that CMR has the ability to meet or exceed schedule requirements (Minchin, Thakkar, and Ellis 2007). This delivery method can also help owners with projects that are schedule sensitive (Walewski, Gibson, and Jasper 2001) and can save some time in the project because of concurrent design and construction (“CM/GC White Paper, Public Contracting Coalition” 2000).

DB

Flexibility in schedule increases in DB because designer and builder are one entity (“Design-Build White Paper, Public Contracting Coalition” 2002). Many experts believe that DB results

in a faster schedule delivery (Walewski, Gibson, and Jasper 2001; Konchar and Sanvido 1998; Gransberg and Molenaar, 2007b; Molenaar and Scott 2003) and has the least schedule growth (Konchar and Sanvido 1998, Scott et al. 2006). Another effect of DB is earlier schedule certainty (Molenaar et al. 2005) because the design-builder submits the project schedule at the time of contracting, which is comparatively early in the project life. Another important characteristic of DB for transit agencies is that it obligates design and construction funds before the end of a given fiscal year (Gransberg et al. 2007b). This can help agencies award a project and allocate the available funds without waiting for the project design to be complete.

DBOM

This delivery method can increase schedule certainty and early delivery of the project (Kessler 2005). It has all the characteristics of DB, so it can be used as a means of schedule compression.

Issue 4: Risk Management

Each new project has some level of uncertainty during various phases of its development. Strategies for coping with these uncertainties are built into each delivery method. The effect of each delivery method on risk identification, quantification, and mitigation is different; therefore, selection of a delivery method is dependent on the owner's risk management approach. These differences are considered under this issue. Tier 3 of the selection system presented in this guidebook is based on risk allocation. Also, it should be noted that the effect of risks is prevalent in many of the issues discussed in this chapter and is not limited only to Issues 4 and 5 of the chapter.

DBB

This delivery method has a long history of application and a rich background in terms of statutory laws and standard contracts that entail developed risk management processes. When the project scope is clearly definable, the owner of a transit agency can follow the traditional methods of managing risks in DBB (Gordon 1994). Although risks and rewards are easy to understand in this method, disputes often arise over authority, responsibility, and quality (Walewski, Gibson, and Jasper 2001). In other words, having separate contracts for design and construction may or may not help the owner manage the risks of a transit project, and the owner's success in mitigation of risks depends upon the proficiency and experience of the owner and its consultants in risk management.

CMR

The risk for the CMR comes from the CM holding the trade contracts and taking the performance risk of the project (AGC 2004). The use of a GMP structure can create a mechanism to share cost risk between the constructor and the owner agency, in the hopes of ultimately reducing costs. Early constructor involvement may result in a better understanding of the project risks, and more efficient risk allocation can be achieved. This delivery method is conducive to team work. The constructor shares information with the owner and designer on trade subcontracts, value engineering, and so forth. This sharing of information is why some experts believe that CMR theoretically reduces the risk of every entity involved in the project (Minchin, Thakkar, and Ellis 2007).

DB

Risk allocation and risk management are inherently different in DB delivery than they are in DBB and CMR delivery. The risk for errors and omissions in the plans is transferred from the owner to the DB contractor. Having single point accountability for design and construction helps the owner avoid a situation in which the designer and constructor are blaming each other for changes in the cost or the timeframe of the project (Harrington-Hughes 2002; Riley, Diller,

and Kerr 2005; Irwin 2003). From the owner's perspective, the DB approach reduces the size and frequency of change orders (Molenaar and Scott 2003; Riley, Diller, and Kerr 2005) as long as the owner understands the loss of its control over design and also does not change the scope. Agencies should realize that although the risks are contractually transferred to the design-builder, a poorly defined initial scope in the RFP may result in significant cost increases. According to the design-builder's scope of work, which includes the project design, the DB contractor may be required to have errors and omissions insurance (which is usually required from design firms) in this transfer of risks (AGC 2004, Irwin 2003). In essence, the risk for errors and omissions does not go away, but is transferred to the DB contractor, who has more of an economic incentive to manage the risk than the owner in the DBB system.

DBOM

The DBOM entity assumes the risks assumed by the constructor in DB delivery, as well as assuming the risks involved with operations and maintenance, system integration, and project start-up. Agencies expect that the DBOM entity will be more inclined to ensure quality of design and workmanship since it will be responsible for operations and maintenance. Also, the DBOM delivery method does not allow the DBOM entity to claim compensation from the agency for inadequate operation and maintenance considerations because the designer and the constructor are on the same team. As the contract includes the operation and maintenance phase, uncertainty during the operation and maintenance period is reduced by awarding the whole package to the constructor (Garvin 2003). One problem that may surface with DBOM delivery is the commercial/financial approach to risk management by the constructor (Kessler 2005). The DBOM constructor makes money out of the project and may accept higher levels of risk in safety or lower levels of commuter satisfaction to increase its income. This difference between the viewpoints of an agency and a contractor may increase the risk of having safety issues or commuter satisfaction problems.

Issue 5: Risk Allocation

Research in the area of risk management has indicated that the most effective approach for risk management is risk allocation—assigning project risks to the parties in the best position to manage them. This means that the party assuming a certain risk should be the party who has the most control over that risk and is also most likely to survive the negative impact of such risk. The main vehicle for risk allocation is the contract. The type of project delivery method selected by an owner will have a profound impact on risk allocation. Some methods allow the owner greater flexibility in allocating risks to the parties involved. Tier 3 of the project delivery method selection system presented in this guidebook is based on an effective method of risk allocation. For example, schedule risk is sometimes addressed by choosing a DB approach (as discussed above). It is important to note that risk allocation affects many of the issues discussed in this chapter and is not limited to Issues 4 and 5.

DBB

This delivery method can help the owner divide risks between the designer and the contractor, but the risk of additional construction costs resulting from erroneous design remains with the owner, which the owner usually transfers to the design team (AGC 2004). Scope definitions of design and construction contracts in DBB play an important role in risk allocation. The owner will face challenges if the duties are not defined clearly and ambiguity remains in the contracts.

CMR

Although CMR facilitates risk management, it is not necessarily the best method for risk allocation. Having an experienced constructor on board improves the whole process of risk

management, including risk allocation, but the increase in the number of parties directly involved in the project and some overlaps between their duties may make the risk allocation more difficult [Portland Mall Project, Weber County Commuter Rail]. Although GMP as a means of risk allocation should decrease the owner's risks, there is always the possibility that the owner and the onboard contractor will not come to an agreement on GMP in a timely fashion. The owner in this case may have to bid out the project and will suffer from the resulting delay imposed on the project as well as taking the chance of getting bids that are higher than expected.

DB

Because the design-builder is the single point of responsibility in this delivery method, risk allocation is simpler. The owner must carefully decide which risks it can best manage and assign the design-builder the risks that the design-builder can best bear. It is unwise to allocate total risk to the DB contractor because that would drastically increase the contingency and the contractor's insurance costs, which will be transferred to the owner through the bid (AGC 2004). Examples of other risks include the risk of obtaining various environmental permits or purchasing real estate. Experience shows that the owner is in the best position to assume these risks [Greenbush Commuter Rail].

DBOM

Risk allocation in this method is similar to risk allocation in DB, but an allocation of risks is added for the operation and maintenance phase. If the owner can identify the risks of the project early enough to allocate them at the time the project is awarded, DBOM can have some advantages with regard to risk allocation. In other words, DBOM facilitates risk allocation if the owner is able to identify the project risks up front. DBOM has an advantage over other delivery methods in cases in which the system provider does not guarantee the system if operated by another entity (Kessler 2005). One of the major risks in this approach is the owner's ability to provide clear scope and objectives; if the owner cannot provide these, the consequences of disputes in the later stages may be significant.

Issue 6: LEED Certification

Sustainable design and construction features are becoming more common and may become mandatory in the future for public infrastructure projects. Thus, it is important to gauge a project delivery method's ability to include these features in accordance with the owner's needs. The U.S. Green Building Association's Leadership in Energy and Environmental Design (LEED) certification is often used by public agencies as a means of articulating their desire to design and build both energy-efficient and environmentally responsible projects. Although LEED certification has not become a requirement in transit projects, how each delivery method functions with regard to this issue can be a benefit or a drawback. For example, one benefit of establishing LEED as a criterion is that it can be used as a metric to evaluate sustainable design and construction options whether or not LEED certification is sought for the project. LEED prerequisites (including selection of site and construction activity pollution prevention) can yield environmental benefits while reducing regulatory risk. On the other hand, LEED requirements may increase project costs because of extra tasks and documentation. One important fact to remember is that LEED standards are evolving in an effort to accommodate a range of project types. The adoption of LEED criteria as a selection requirement may need to be phrased to indicate that the most current iteration of LEED criteria should be consulted rather than a particular, existing LEED standard.

DBB

In DBB, the owner has a clear opportunity to define sustainable design with LEED criteria. The builder's lack of input in DBB means that there will be little opportunity to take advantage

of builder knowledge of sustainable design, and the owner, in certain cases, can thereby risk losing LEED certification.

CMR

In CMR, the owner has a clear opportunity to define sustainable design with LEED criteria. Sustainable construction features are more likely to be implemented because of the cooperative nature of the owner/builder contract.

DB

With DB, the owner can clearly articulate its expectations regarding the use of LEED criteria by assigning weight to the LEED criteria in relation to other factors in the DB evaluation plan and by using sustainable design and construction as performance criteria during design and construction. There is some evidence that the use of DB may hamper the objective of achieving LEED certification. This is due to the perception of risk by the DB contractor when considering whether to bid on a DB project with LEED goals. The owner needs to define the project scope and goals clearly to ensure reasonable competition, especially if LEED certification is desired.

DBOM

While the project owner and operation and maintenance personnel may be acquainted with the LEED criteria and requirements, there may be limited ability to incorporate evolving criteria as well as restricted opportunities to “push the envelope.” The addition of post-construction operation and maintenance allows the owner to hold the DBOM contractor responsible for delivering the lifecycle cost savings incorporated as a result of the design process. The DBOM contractor would thus be at risk for failing to achieve the savings associated with the approved design. Reduced lifecycle cost (both economic and environmental) is an advantage of sustainable design strategies and a fundamental LEED component. Sustainable design strategies that may produce increased initial costs are balanced and ultimately offset through reduced lifecycle costs.

Agency-Level Issues

Agency-level issues relate to the owner agency. These will include items such as experience with various delivery methods, workforce requirements, staff capability, agency goals and objectives, agency control of the project, and third-party agreements.

Issue 7: Agency Experience

This issue relates mainly to the level of experience of an owner’s staff in application of various delivery methods—in other words the staff’s comfort and confidence using a specific delivery method. Owners who have used a project delivery method in the past would have a higher level of experience with that method.

DBB

Transit agencies have historically employed DBB as their project delivery method. This experience with DBB makes it a good candidate as a project delivery method (Harrington-Hughes 2002). This experience can motivate an agency to use an alternative delivery method or deter the agency from doing so. The most experienced owners may find that some of their negative experiences with DBB (e.g., contractor’s claims, erroneous designs, delays in the schedule, and cost overruns) will push them to try alternative methods. Other owners will be comfortable with DBB delivery and therefore be hesitant to try new delivery methods.

CMR

Most transit agencies have not used CMR for their projects because this is a relatively new project delivery method in transit. Agencies' experience with CM is limited mainly to hiring a construction manager as a consultant or agency CM (see Chapter 2 for a detailed discussion of the CM definition). Nonetheless, agency staff with DBB management experience should have most of the skills necessary to manage CMR because of the similarities between CMR and DBB [Portland Mall Project and Weber County Commuter Rail]. One missing skill may be negotiating the construction manager's preconstruction services fees and the GMP in CMR.

DB

Several transit projects have been executed with the DB approach. Many transit agencies, as well as other public agencies, have the managerial experience required for a DB project. Although agency staff with DBB management experience should have most of the skills necessary to manage DB, the differences between DB and DBB are significant enough that some sort of training seems to be inevitable for agencies with no background in DB. The primary difference between the two approaches is in managing a contract that contains the designer and constructor as one entity. This difference affects the manner in which the design-builder is procured (e.g., using the best value method instead of bidding based solely on cost), the manner in which the design is reviewed, and some aspects of how construction is overseen by the owner. Additionally, agency staff will need to learn how to conduct project oversight without the presence of a completed design for early features of work. This may require training in new skills for owner employees, which may make DB more difficult to administer [Medical Center Extension, Greenbush Commuter Rail, T-REX, and I-205 Light Rail Extension Project].

DBOM

DBOM represents a significant departure from DBB, and few agencies have experience with this method. The advantage to using DBOM is that the agency can transfer most of the traditional responsibilities of the agency staff to the DBOM contractor. Some experts believe that this delivery method is best suited for small agencies without substantial in-house expertise (Kessler 2005). However, the loss of control that goes with this transference of responsibility can be a disadvantage if the agency does not have experience in managing responsibilities for design, construction, and maintenance that have been outsourced to a contractor.

Issue 8: Staffing Required

This issue reflects how each delivery method affects the owner's direct involvement in the project. Each delivery method assigns specific duties to each party, including the owner. The scope of these duties and the dependence of project progress on the owner's involvement in decisions reflect the extent of the owner's involvement. The total number of owner employees required for each delivery method is one measure of the extent of owner involvement. A second measure is the variation in the number of staff required throughout the project development process. It is assumed that, in general, a smaller staff is more desirable; nonetheless, this assumption has to be weighed against potential reluctance within the agency to buy into a method that can reduce the need for agency staff.

DBB

An owner in a DBB project should administer two separate contracts for design and construction. Because of this and the high level of involvement in decision-making and quality management, a relatively large number of owner employees are needed in this approach [Silver Line Project] (AGC 2004, Gordon 1994). The owner's responsibilities in DBB are spread throughout the project (mainly focused on dealing with the designer at the beginning of the process and

shifting to focus on the contractor after project award); fluctuation in the number of employees required during the project is minimal.

CMR

The owner hires a new party in CMR and delegates some parts of its managing duties to this party. This approach can arguably require the least number of owner employees because the CMR can expand to meet the owner's staffing needs (Gordon 1994). The owner may, however, need to add some professionals to its staff (either as employees or consultants) if special expertise (e.g., GMP or construction manager's fee negotiation) in managing a CMR contract is desired.

DB

The owner should develop a comprehensive set of project specifications before advertising a DB project because the design-builder takes responsibility for the project in both design and construction phases only after the project is awarded and will base the project design on the specifications. The owners may hire consultants for developing the RFQ/RFP documents or use their own staff. One study shows that most agencies have not changed the size of their staff after implementing DB mainly because the owner must be involved in a substantial amount of pre-advertising design and engineering (Gransberg and Molenaar 2007b). Another study shows that some public agencies have put considerable effort into developing the design documents as a means of performance risk reduction in large DB projects (Molenaar 2005). The number of staff required for project administration decreases after the award because the number of checkpoints and controls is reduced in this delivery method and the oversight procedures are usually streamlined (Harrington-Hughes 2002). Another driver with respect to the size of staff is the way quality assurance/quality control (QA/QC) is handled in DB projects. In most DB projects, the constructor is put in charge of day-to-day QC functions. The owner's role is to design and implement a QA program.

DBOM

Early decisions in this delivery method cover a wide range—from the feasibility of the project in conceptual design to safety in the operation phase. This broad range of expertise requires an owner to have a good-sized staff to handle the project at least in pre-design and preliminary phases of design [Hudson-Bergen Light Rail]. On the other hand, some experts believe that a transit agency with a small staff would prefer to choose DBOM and outsource many of its duties (Kessler 2005). In most DB projects, the constructor is put in charge of day-to-day QC functions. The owner's role is limited to spot checks and QA functions.

Issue 9: Staff Capability

This issue is mainly focused on the quality and competence of the owner's employees and their ability to complete the duties that must be undertaken in each delivery method. There is a concern about the retirement of experienced employees negatively affecting the capability of an owner's staff during the project. So the availability of the experienced staff until the end of the project should be considered while evaluating staff capability.

DBB

Transit agencies have more experience with DBB than other project delivery methods. This experience helps them to gradually build up capability in their staff at all levels of the organization. An important issue to consider is the different staff expertise required to handle a design contract with the designer of the project and a construction contract with the general contractor. If an owner chooses a project delivery method other than DBB, it may end up with a longer list of required competencies [Silver Line Project].

CMR

Some professionals believe that administering CMR requires special capabilities while others think that the owner agency delegates most of its duties to the CMR. While the work can be delegated, agency staff must be capable of overseeing CMR work and notice errors or omissions [Portland Mall Project and Weber County Commuter Rail]. CMR also requires management of the relations between the onboard constructor and the designer. The owner should carefully manage the process by which the constructor gives input (constructability, value engineering, etc.) to the designer and the way these inputs are received, analyzed, and implemented. Also, the experience of the agency staff in GMP negotiations is a key factor in this delivery method. It seems that while the agency would need a smaller staff with this method, the staff would need to be especially competent and versatile in dealing with these additional requirements.

DB

DB contracts require owner competency in managing the process, keeping up with the typically faster pace of the design-builder, and understanding the procedures. Recent research shows that the traditional design and construction engineering tasks performed by public agency professional engineers (e.g., design deliverable approvals and construction inspection) were performed by the same staff in design-build projects (Gransberg and Molenaar 2007b). While the required skills for DBB are similar to DB, owners tend to put their most experienced staff on DB projects because these staff members need to understand conceptual designs, conceptual estimates, and performance criteria. These skills typically reside only in the most experienced staff [Medical Center Extension, Greenbush Commuter Rail, T-REX, and I-205 Light Rail Extension Project] (Gransberg and Molenaar 2007b).

DBOM

The variety of decisions that must be made early in the main portion of the project scope demands capable employees with a high level of expertise [Hudson-Bergen Light Rail]. The owner will also need to have financial analysis capabilities in its staff because this delivery method may include project financing, which in turn will require more extensive financial analysis of project viability, contract incentives, and the owner's financial security (FTA 2006).

Issue 10: Agency Goals and Objectives

Agency goals can be described in broad terms as providing service to the community or achieving its growth goals. Agency goals can align with project delivery attributes or can be in conflict with them. Agency goals are different from project goals. Agency goals entail statutory requirements for safety, equal opportunity, and other legal/regulatory requirements. Project goals, on the other hand, are specified in procurement documents and are usually described in terms of time and cost expectations.

DBB

An agency can incorporate its goals and objectives in prescriptive specifications and detailed designs. Having control over the design, on the one hand, and requirement of design approval for construction commencement, on the other hand, helps the owner ensure the achievement of its goals and objectives. Examples of achieving goals and objectives include specifying targets for disadvantaged business enterprise (DBE) participation and stakeholders concerns with regard to agency and project objectives.

CMR

The agency can work with CMR during the design phase and when negotiating the GMP to develop project goals and objectives in alignment with agency goals and ensure that they

are achieved by the project. Since this is typically a qualifications-based selection, the RFP can help ensure that agency goals and objectives are clearly incorporated into CMR proposals. This delivery method may encourage a better owner-constructor relationship than DBB, one that can facilitate the achievement of agency goals [Portland Mall Project and Weber County Commuter Rail].

DB

In DB, an agency has less control over the details of the design than in DBB. To the extent that these details affect agency goals, DB may have a negative impact on achieving agency goals. Examples of agency goals that could be compromised include aesthetic considerations, safety, and commuter satisfaction. If an owner is not absolutely clear on its goals prior to procurement, DB can yield unsatisfying results [Medical Center Extension, Greenbush Commuter Rail, T-REX, and I-205 Light Rail Extension Project] (Molenaar et al. 2005).

DBOM

A DBOM contract covers a large number of project issues. This comprehensive agreement may push the project through different decision steps and help the owner achieve its goals. Nonetheless, there is a concern that DBOM may hinder the owner in achieving its social goals. Although, according to Kessler (2005, p. 36), a “TRB study” states that decreases in quality and safety of services provided by private entities have not been proven, some experts believe that using this delivery method may limit agencies’ power to serve the public (e.g., a change required in operation phase will be extremely costly in DBOM). Advocates of this method believe that a comprehensive agreement with an appropriate level of detail can address this issue; however, it should be noted that there is insufficient precedence to ensure success.

Issue 11: Agency Control of Project

Different delivery methods have different checkpoints and decision-making steps. This section is focused on an owner’s control over the details of design and quality of construction; cost control and time control are examined in other sections.

DBB

The owner using this delivery method may benefit from the checks and balances provided by having separate contracts with the designer and the constructor. Having periodic decision points in DBB, primarily during the design phase, helps the owner control the project’s design (Harrington-Hughes 2002, Garvin 2003, Irwin 2003). Having a specific contract based on bid plans helps the owner to control construction and material quality. The owner has objective control over the quality of the design through the design team. Also, if flexibility is required during construction, DBB can perform better than some other methods because there are established procedures for implementing changes. Nonetheless, change orders are usually accompanied by corresponding cost increases.

CMR

The owner agency benefits from the involvement of the CM in most of the decisions during the design phase. The CM can assist in controlling the details of design. The owner therefore has a similar level of control in CMR as in DBB if the working relationship with the CMR is good. This delivery method gives more control and flexibility to the owner in implementing changes in the details of design during design development than DB does. Furthermore, implementing changes in CMR may be more effective than implementing changes in DBB because the CM is on the team in CMR (Walewski, Gibson, and Jasper 2001; Minchin, Thakkar, and Ellis 2007).

DB

Although, according to some, DB provides the owner with the same quality of design and construction as DBB does, in DB the owner loses control over the details of the design that are not defined in the RFP (Konchar and Sanvido 1998; SAIC, AECOM Consult, and University of Colorado at Boulder 2006). Loss of control over the design (and possibly lack of checkpoints) has the potential to expose the owner to shortcomings in the quality of design and construction [Medical Center Extension, T-REX, and I-205 Light Rail Extension Project] (Gordon & Rees LLP 2005; Irwin 2003; Gransberg and Molenaar 2004).

DBOM

The owner in this delivery method loses control over the details of design and details of operation and maintenance. DBOM is not a good option for owners who want to extend their existing systems, mainly because of the integration needed in the operation phase (Kessler 2005). Loss of checks and controls after awarding the contract is a disadvantage of this delivery method especially if the owner is expecting a high level of control over the project.

Issue 12: Third-Party Agreements

This issue concerns each delivery method's impact on facilitating agreements with third parties—political entities, utilities, railroads, and so forth—involved in the progress of the project.

DBB

Using DBB can be advantageous during lengthy negotiations with some project stakeholders [Silver Line Project]. It gives some flexibility and time to the owner to get required agreements before the commencement of the construction phase. Third parties, on the other hand, have the ability to examine 100%-complete designs before a contractor is hired. The possible disadvantages of completing designs before hiring a contractor include a lengthy design schedule (including numerous instances of stakeholder inputs that can disrupt the most generous schedules) and a lack of construction contractor input into the third-party agreements.

CMR

The main advantage of having a CM is having constructability advice and the responsibility for that advice (e.g., construction knowledge and an understanding of construction methods) during the development of third-party agreements. This delivery method may also have a significant impact on getting into an agreement with third parties involved in a project when compared to DBB if the owner includes the responsibility to make agreements with third parties as part of the CMR contract. As an example, among the agencies interviewed in this research, one strongly emphasized the benefit of having a contractor on board while negotiating with third parties [Weber County Commuter Rail]. In general, the CMR's knowledge of construction processes and sequencing can help clarify various aspects of project impact on communities and institutions; this will hopefully facilitate achieving understanding and approvals.

DB

The DB process can move third-party agreements to an earlier point in the delivery process, often before the design is complete. Agencies have experienced both the benefits and drawbacks of having the design-build contractor on the team before all third-party agreements are in place. As the design and construction are awarded in one contract, the time required to develop agreements with other parties can be shorter than desired. Additionally, these agreements must often be written in performance terms because the design is not completed at the time of award. However, some experiences with DB show that DB contractors have been successful in obtaining responses from project stakeholders by exerting pressure on them. Constructors have different

approaches to negotiating agreements with third parties than owners do, and these approaches can often be very effective [Medical Center Extension, Greenbush Commuter Rail, T-REX, and I-205 Light Rail Extension Project].

DBOM

Since the DBOM contractor will be maintaining the project for a significant period of time after construction, it needs to exert much more control over the third-party agreements. The DBOM contractor may negotiate some of the agreements with little input from the owner. The remainder of the agreements will be similar to the DB process. Sometimes, in cases with fewer schedule constraints, owners may treat third-party agreements similar to the way that they are treated in a DBB project [Hudson-Bergen Light Rail].

Public Policy/Regulatory Issues

This section examines the choice of project delivery method in relation to public policy/regulatory issues such as existing laws, mandated social programs, labor unions, and so forth that establish the legal environment in which the project must be delivered.

Issue 13: Competition

The choice of delivery method may affect the level of competition. In many cases, agencies are operating under a legal requirement that requires “free and open” competition. The owners benefit from a competitive market mainly because of the reduction in bid prices; so, if the choice of a certain delivery method reduces the number of qualified proposers/bidders, it would be considered a disadvantage. Currently, the volatility of bid prices in transportation projects is a major concern for the owners of transit (and other transportation) projects. Additionally, some project delivery methods may inadvertently lead the agency to package projects in sizes that can effectively reduce competition due to bonding limitations and contractors’ capacities. The effects of each delivery method on competition are evaluated below.

DBB

Compared with other delivery methods, the availability of a relatively large pool of potentially qualified bidders in DBB ensures a high level of competition (Walewski, Gibson, and Jasper 2001; AGC 2004). The owner can benefit from this market competition and get a low bid/proposal for its project. This approach also enables the owner to divide the project into smaller packages and bid them out separately to further increase competition. The drawback to the multi-prime approach is that the coordination among various contracts may prove difficult.

CMR

Using RFP procedures and taking into consideration qualifications-based factors when evaluating bidders can help owners weed out unqualified proposers. The issue in this method is that the selected CMR constructor becomes the de facto winner of the construction contract, giving the owner less competitive leverage when pricing the construction (Irwin 2003). This can be alleviated to some degree by requiring that the project components be bid competitively among various trade subcontractors. Also, the owner can reserve the right to go to regular bidding if it cannot agree on a GMP with the CMR.

DB

The RFP process can weed out unqualified DB entities; however, at the same time, the size of the bid package and the bid preparation costs may reduce the number of qualified bidders (AGC 2004).

DBOM

Adding operation and maintenance to the scope of work will lengthen the contract duration compared with other delivery methods and requires some extra competencies that typical construction contractors usually lack. The prime contractor usually hires operation and maintenance subcontractors as parts of the consortium. These factors may decrease the number of potentially qualified bidders when a DBOM project is bid out. In most DBOM projects so far, the number of responsive bidders has not exceeded two!

Issue 14: Disadvantaged Business Enterprise (DBE) Impacts

A project delivery method can facilitate fair competition for DBEs for DOT-assisted contracts and reduce burdens on small businesses. The effect of each delivery method on promoting participation by disadvantaged businesses is evaluated in this section. In general, due to the size of most transit programs, it is unlikely that a DBE firm would serve as the lead constructor. What is more common is to set aside a certain percentage of the budget to ensure DBE participation.

DBB

With DBB, the owner has the chance to include requirements for DBE participation in both design and construction contracts. For example, in the RFP for soliciting design services, the owner may stipulate the nature and extent of DBE participation as part of the design team. In the same way, the owner may require that the general contractor perform a pre-set percentage of construction using DBE subcontractors. Usually, the minimum level (as well as the desired target level) of participation is stipulated in terms of percentage of contract price. On the other hand, the low-bid environment may force DBE subcontractors to submit dangerously low prices, potentially harming the future viability of these fledgling companies.

CMR

A constructor that submits a proposal for a CMR project is usually more sophisticated than a DBB construction contractor. Lack of experience is a disadvantage for DBEs in a qualifications-based selection. One method to ensure DBE participation is to require a pre-set minimum (and target) percentage of the GMP for DBE firms when the GMP contract is negotiated.

DB

Lack of experience and financial resources usually make it difficult for a DBE to become the main contractor for a DB project; however, small businesses/DBEs may become subcontractors of the design-builder. As the owner is not directly involved in selecting subcontractors and suppliers, requirements for DBE participation as a percentage of the project budget should be included in the RFP for a DB project and also in the project contract. This percentage should be based on the number of DBEs associated with the various trades that will be required in the project. The design builder should report (usually monthly) actual payments to all the DBE subcontractors and suppliers. Because an owner has less control in this delivery approach, the enforcement of DBE participation may be harder than with DBB or CMR.

DBOM

DBOM performs very similarly to DB and has the same advantages and disadvantages. The dollar value and the size of the main contract do not work against small businesses if relevant considerations are included in the contract. For example, there were DBE goals in the Hudson-Bergen Light Rail Project that were achieved by putting a clause in the contract for outsourcing some parts of the project to local contractors [Hudson-Bergen Light Rail]. It should be noted, however, that because an agency's control is minimized in this delivery method, there may be some risk that the DBOM contractor does not achieve the desired level of DBE participation.

Issue 15: Labor Unions

Each delivery method covers certain phases of a project lifecycle. For example, DBOM covers almost all the phases while DBB only affects the construction phase. The choice of delivery method may have an impact on labor usage and hence labor union issues. The legal protections for transit laborers, such as Section 13(c) of the Federal Transit Act, complicate the application for federal grants, and transit agencies should show that fair and equitable protective arrangements are made to protect employees affected by such assistance (for more information on Section 13(c) see *TCRP Legal Research Digest 4* [Woodman, Starke, and Schwartz 1995]). Other acts, such as the Davis-Bacon act, should also be taken into consideration when determining laborers' minimum wages in any delivery method.

DBB

In DBB, the contractor hires the laborers directly or through a subcontractor. Union or non-union labor may be used in this method (unless local conditions and considerations limit a contractor's options), and there would be no fundamental opposition to DBB unless the contractor fails to comply with the relevant rules and regulations set forth.

CMR

The constructor in this delivery method plays a similar role to the contractor in DBB, and it is unlikely that there would be fundamental issues between the unions and the constructor. If there are union issues in the project's location, the constructor does not usually guarantee the maximum price of the project and may not absorb the risks posed by the labor union issues. Unions may support alternative delivery methods because these methods give more weight to qualifications than to cost; unions assert that their members are more qualified than non-union labor (Bearup, Kenig, and O'Donnell 2007).

DB

Design-builders are usually joint ventures and dissolve at the end of a project. This may make the process of dealing with unions a bit complicated because unions expect a reliable and established party with whom to have an agreement. Awarding the design to a design-builder in cases where state engineers have their own unions (e.g., in California) may cause conflicts and challenges for owners who want to use DB (this practice has more precedence in highway projects than in transit projects). Unions may support alternative delivery methods as these methods give more weight to qualifications than to cost; unions assert their members are more qualified than non-union labor (Bearup, Kenig, and O'Donnell 2007).

DBOM

Labor unions may affect DBOM more than DB because DBOM includes operation and maintenance, which are usually done by union laborers employed by public entities. The law requires that the jobs of the laborers already employed by the agency be protected according to the requirements of Section 13(c). Because of this, there must be an agreement between the constructor and the related unions to guarantee the availability of operation and maintenance personnel at reasonable rates during the operation phase. Also, there may be some opposition from an agency's maintenance employees to the award of such contracts. In any case, there is already considerable experience with operation and maintenance contracting in transit.

Issue 16: Federal/State/Local Laws

Research done on federal and state laws suggests that transit agencies may not be able to use some project delivery methods. Some states require transit agencies go through several steps before being allowed to use an alternative delivery method. This section looks at how difficult it

is to use a delivery method from a legal standpoint. Constant changes in state and local laws mean that an agency researching possible delivery methods for a project should check the legality of each delivery method by checking all the relevant codes. (See Chapter 2 for more information on this issue.)

DBB

All the state codes accept DBB as a project delivery method for a transit project. Relevant procurement processes are well developed, and details of DBB execution are available nationwide.

CMR

More than half of the states do not allow the use of CMR transit projects (Ghavamifar and Touran 2008). Some have imposed limits or extra approval requirements, and only about 14 states have fully authorized CMR application in transportation projects. Even in those cases, approval for transportation projects may not mean that CMR can be used in a transit project. Because of these complications, the legality of CMR or any delivery method other than DBB should be carefully reviewed in a specific state.

DB

This delivery method has been used more than CMR, but there are still 13 states where this delivery method is not allowed in transportation projects.

DBOM

Awarding a project with DBOM is similar to awarding a project with DB, and owners are required to comply with the same laws and regulations that in some locations make DBOM application impossible. In addition, if the DBOM arrangement calls for contractor financing, then additional regulations and laws may need to be considered.

Issue 17: FTA/EPA Regulations

The effect of various environmental regulations on project cost and schedule can be profound. These include obtaining various types of permits and complying with various regulations. Additionally, FTA specifies that a number of requirements be met before a project can receive commitment for federal funding (i.e., receive the Full Funding Grant Agreement (FFGA) in the case of New Starts projects). Currently, the FTA accepts all types of project delivery methods; specifically, they modified their evaluation process to accommodate DB and DBOM in the 1990s.

DBB

The traditional approach is the most familiar for the FTA and the environmental agencies. This familiarity can be an advantage in the permitting and funding process.

CMR

FTA has less experience with CMR than with DBB. This may cause some problems or delays although the agency maintains that it can accommodate all legal delivery methods. Handling environmental issues in CMR would be similar to DBB because the owner remains involved and is in control throughout the design phase.

DB

FTA started an initiative to experiment with DB early in the 1990s. Five pilot projects were constructed using the DB approach. FTA has since modified its procedures to accommodate the DB delivery method. The owner agencies prefer to receive the FFGA before the project goes to bid, while the project is at the end of preliminary engineering and subject to many uncertainties.

Current regulations require that the agencies work closely with FTA, which may cause some delay. The FTA had some problems with the first generation of DB projects. Currently, most of these problems have been resolved, and the agency has matured in dealing with DB projects. The environmental permitting process, however, can be problematic. For example, in a commuter rail project [Greenbush Commuter Rail], a major cause of delay was that the owner had left the obtaining of environmental permits to the constructor, a task for which the DB contractor was ill equipped. This caused a delay of more than a year.

DBOM

Concerns with DBOM are similar to concerns with DB in relation to FTA/EPA regulations.

Issue 18: Stakeholder/Community Input

The opportunities afforded by a particular delivery method to an owner for coping with community inputs are discussed below. A delivery method should leverage stakeholder and community input as much as possible to achieve project goals in a meaningful and transparent fashion.

DBB

The separation of design and construction phases in DBB gives an owner more time and opportunity to get stakeholders' and communities' inputs to project design and incorporate their expectations into the project scope before the commencement of the construction phase. This characteristic of DBB can lengthen the project preconstruction phase and cause delays in the project.

CMR

The CM is on board during design in CMR and can help the owner negotiate with stakeholders and understand their expectations while pushing the project forward. Additionally, community outreach and public information can be made part of the CMR's preconstruction service package. Depending on the CMR's experience and qualifications, this may enhance project chances for obtaining community consent and stakeholder agreements.

DB

The owner of a transit project needs to get all the important input from stakeholders before issuing an RFP because changes in the project after that are difficult and costly. On the other hand, after the contract award, DB contractors have sometimes been able to handle community pressure more effectively than state agencies [T-REX]. Additionally, the agency can require the DB contractor to include a public information and outreach program in the project to facilitate stakeholder input during design and construction.

DBOM

This delivery method decreases the decision points and covers a longer period of time in the project lifecycle. This characteristic makes preconstruction negotiations between owners and stakeholders more complex. The DBOM contractor may be able to push through the construction phase and handle community pressures more effectively. At this point, there is little evidence to show how this issue will be coped with in DBOM projects.

Lifecycle Issues

This section looks at the project delivery methods in a long-term, post-construction context. Lifecycle issues are those issues that impact not only the maintainability of a project and the cost

of operation and maintenance, but also the sustainable design and construction goals that are starting to emerge as measures of an agency's commitment to the environment.

Issue 19: Lifecycle Costs

The opportunities or barriers that each delivery method provides with regard to lifecycle costs are discussed below.

DBB

The owner is in control of design and quality and can tailor these to a project's long-term life-cycle goals.

CMR

The owner keeps almost the same level of control over the design of the project as in DBB and also benefits from constructor's advice regarding future costs of the project.

DB

The owner needs to watch out for increasing project lifecycle costs mainly because the design-builder has a motive to decrease the initial costs of the project to bring it down to the agreed upon amount regardless of possible increases in the future operation and maintenance costs of the facility.

DBOM

In this delivery method, the constructor is in charge of operating and maintaining the built facility. Transferring the responsibility of long-term operation and maintenance to a private constructor creates opportunities to leverage private-sector expertise and to realize lifecycle cost reduction by integrating delivery activities and private-sector efficiencies (Garvin 2003, FTA 2006). There are usually provisions in a DBOM contract that motivate the constructor to keep the operation and maintenance cost at the lowest possible amount. The DBOM delivery method is primarily used for financial purposes in countries other than the United States and has been the most suitable delivery method for public owners when the project initial costs are beyond the available funding resources (Harrington-Hughes 2002)

Issue 20: Maintainability

Maintainability is affected by the choice of delivery method in two different areas: level of quality and ease of maintenance.

DBB

In DBB, the owner can check the maintainability of the finished design before awarding the project. Having checkpoints in the design phase can help the owner ensure the design quality of the end product.

CMR

The owner of a CMR project can benefit from all the advantages of DBB and also the constructor's advice on maintenance of the end product if the constructor has previously operated similar facilities.

DB

As quality control is transferred to the design-builder in DB and the details of the design are not known at the time that the project is awarded, many owners have some concerns about the

maintainability and quality of the end product. This has led some owners to require multiyear warranties from DB contractors.

DBOM

This delivery method works much like DB; however, as operation and maintenance are included in the contract and the constructor is in charge of operating the facility after it is built, the owner is less concerned about ensuring the quality and maintainability of the end product.

Issue 21: Sustainable Design Goals

Sustainable design is becoming ever more important in achieving sustainability goals for projects. The effect of delivery method on the sustainability of project designs is the focus of this discussion.

DBB

In DBB, the owner has a clear opportunity to define sustainable design intent and shape social and environmental impact. This method provides opportunities to promote and enhance sustainable design criteria by allowing for materials research and the development of strategic stakeholder input. One drawback may be that the ultimate operation and maintenance personnel for the project could be unfamiliar with the operational requirements for sustainable systems, but this is an issue that can be resolved with careful planning.

CMR

In CMR, the owner has a unique opportunity to realize the economic returns of sustainable systems performance as well as using sustainability as an evaluation factor for the selection of a builder. The design schedule could, however, outlive systems performance criteria and impact public participation, limiting social equity issues.

DB

This project delivery method can result in an inherent coordination of design and performance with potential for accelerated economic returns for sustainable systems performance by shortening the project schedule. The owner has an opportunity to use multiple design-builders to present innovative designs that are consistent with clearly defined sustainability criteria. The owner can clearly articulate expectations regarding sustainability by assigning weight to sustainability in relation to other factors in the DB evaluation plan. The design schedule could, however, impact public participation, thereby raising social equity issues. Due to the normally time-consuming processes associated with fulfilling municipal and state requirements for announcement and convening of public hearings, certain sustainability measures—such as wetlands mitigation and avoidance of undeveloped areas—raise concerns for eminent domain and brown fields redevelopment, which can impact time performance.

DBOM

DBOM can realize accelerated economic returns for sustainable systems performance since the owner/operator has an inherent bias toward minimizing operations and maintenance life-cycle costs. The compressed timeframes could, however, impact public participation, raising social equity issues. Furthermore, operation and maintenance personnel may be unfamiliar with sustainable systems requirements. For example, materials may require alternate maintenance procedures or systems controls may incorporate technologies requiring specialized training that may be beyond the scope of the initial proposal.

Issue 22: Sustainable Construction Goals

Sustainable construction is an important vehicle for achieving sustainability goals for new projects. The disconnect between designer and builder in some delivery methods can restrict the means and methods available for a project. The effect of various delivery methods on facilitating sustainable construction is the focus of this discussion.

DBB

With DBB, an experienced constructor does not have the opportunity to give sustainable design features as inputs during the design phase. Sustainable materials and practices relevant to regional procurement and construction methodology may be unavailable to designers unfamiliar with the project location.

CMR

With CMR, the owner has a unique opportunity to realize the economic returns for sustainable systems performance as well as using sustainability as an evaluation factor for the selection of a builder. Sustainable construction features are more likely to be implemented considering the cooperative nature of the owner/constructor contracts in this delivery method.

DB

This project delivery method can result in an inherent coordination of design and performance with potential for accelerated economic returns for sustainable systems performance. The owner has an opportunity to use sustainability to evaluate potential design-builders although innovation with sustainable criteria related to more advanced technology could be limited due to a lack of previous installations.

DBOM

In DBOM, because designer, builder, and operator are contractually united, there is an inherent coordination of design and performance with the requisite guaranteed ability to implement sustainable construction and operational features. DBOM can realize accelerated economic returns for sustainable systems performance since DBOM contractors have an inherent bias toward minimizing operations and maintenance lifecycle costs. Added benefits can include participation in the development of evaluation criteria for new technologies as part of an ongoing review of installed systems and lifecycle costs.

Other Issues

This category includes issues that are important to project success that have not been previously categorized in this chapter.

Issue 23: Construction Claims

The focus of this discussion is how each delivery method exposes the agency to potential conflicts and claims. If a delivery method can reduce exposure to construction claims, that delivery method is a favorable choice, and if it increases the possibility of construction claims, it is an unfavorable choice.

DBB

This method typically has the highest occurrence of claims and disputes. Disputes often arise over authority, responsibility, and quality (Walewski, Gibson, and Jasper 2001). Furthermore,

as the owner is responsible for design completeness, errors and omissions claims are common in DBB projects. Some contractors may bid low to win a job and try to enhance their final profit margin through claims and change orders, especially if design errors or ambiguities are present in the construction documents. Studies have shown that this delivery method results in the highest rate of cost growth, which could be an indication of a large number of claims (Konchar and Sanvido 1998).

CMR

Assuming a well-structured contract, there is less possibility of claims and disputes in CMR projects once a GMP is agreed upon and the contract is signed. Because the CMR is present during the design process, there is less need for information and clarification of the design documents. Some professionals think that this approach will result in very few construction claims, which is a major advantage of the CMR approach [Weber County Commuter Rail]. The qualifications-based selection methodology creates an effective deterrent to initiating claims by requiring the CMR to be “successful” on the current contract in order to be competitive for future projects. The qualifications-based selection process may reduce the possibility of hiring litigious contractors.

DB

Some research shows that the size and frequency of change orders are less in DB than in other project delivery methods (Riley, Diller, and Kerr 2005). This delivery method is less prone to claims and disputes, assuming a well-structured contract. For example, claims for design errors, a major source of DBB contractors’ complaints, are reduced considerably in DB. At the same time, early pricing leaves the owner vulnerable to claims for scope that was missing in the RFP. The qualifications-based selection methodology creates an effective deterrent to initiating claims by requiring the design-builder to be “successful” on the current contract in order to be competitive for future projects.

DBOM

An advantage of DBOM is that at the time of the agreement among all the parties, the maximum level of contractual obligation is signed. In other words, all parties have obligated themselves not only for the construction phase but also for several years of operation and maintenance. This will minimize the challenges of start-up claims and system integration in complex projects (Kessler 2005). On the other hand, if the DBOM contractor does not have the competencies and characteristics expected by the owner, or, if the owner has not defined the scope of work adequately, the project will face difficulties during the design, construction, and operation phases.

Issue 24: Adversarial Relationship

Transit projects can be hampered by conflicts between parties to the design and construction contracts. The higher the level of adversarial relationships in a project, the more likely the project will suffer from cost, schedule, and quality problems. Delivery methods define the relationships among all project parties. If the project delivery method encourages project parties to work together as a team to achieve the project goals and characteristics, it is considered a benefit. Conversely, if the project delivery method increases the possibility of adversarial relationships, it is considered a detriment.

DBB

This delivery method can create an adversarial relationship among the parties to the contract—mainly between the owner and the construction contractor (Walewski, Gibson, and Jasper 2001; Irwin 2003; Mahdi and Al-Reshaid 2005). Furthermore, the engineer and the contractor may

assume adversarial roles as one is in charge of approving the other's work. The division of responsibilities may also result in these two parties blaming each other in the case of project failures or during major disputes (Halpin 2006).

CMR

The inclusion of the construction contractor during the design phase in the CMR method builds constructive team work and facilitates project team formation (Irwin 2003; Minchin, Thakkar, and Ellis 2007) although it requires extensive coordination of consultants and/or subcontractors.

DB

Having a single point of responsibility for design and construction, as in the DB method, decreases the potential for conflict between the engineer and constructor (Walewski, Gibson, and Jasper 2001; Harrington-Hughes 2002; Halpin 2006). Although in DB there should be less incentive for the designer and the constructor to blame each other for problems (since they are both on the same team and they are jointly responsible to the agency for the success of the project), instances of disputes between designer and constructor (on the same DB team) were observed during the interviews for this research [Greenbush Commuter Rail and Hudson-Bergen Light Rail]. It is worth mentioning that design-builders may be deterred from submitting frivolous claims to owners who have future DB projects because with a qualifications-based selection system the design-builder will want to avoid making the owner angry with a claim.

DBOM

With the DBOM method, the owner is less vulnerable to disputes between DB and operation and maintenance personnel. This delivery method also decreases start-up challenges and system integration during the initial years of operation (Kessler 2005). Despite this, disputes between team members such as systems and civil contractors can adversely affect the project.

Conclusion

This chapter discusses the advantages and disadvantages of various project delivery methods in relation to each of the pertinent issues discussed. It should be noted that in many cases, the advantages and disadvantages listed are not absolute and should be considered in comparison with competing delivery methods. The information provided in this chapter can be used to help identify the strengths or weaknesses of each delivery method in relation to important factors that can affect a project's goals. This discussion provides a broad picture of the issues affecting project delivery methods and thereby provides a basis for the decision system that is introduced in the chapters that follow.

Tier 1—Analytical Delivery Decision Approach

Introduction

No single project delivery method is appropriate for every project. Each project must be examined individually to determine how it aligns with the attributes of each available delivery method. The Tier 1—Analytical Delivery Decision Approach (Tier 1 approach) provides transit agencies with a structured approach to choosing the most appropriate project delivery method for an individual project. The Tier 1 approach has three primary objectives:

- Present a structured framework to assist agencies in examining 24 pertinent issues involved in the project delivery decision,
- Assist agencies in determining whether there is a dominant or obvious choice of project delivery method, and
- Provide a structure for documenting the project delivery decision in the form of a Project Delivery Decision Report.

The Tier 1 approach provides a framework for agencies to use in defining project goals and examining the advantages and disadvantages of each delivery method within the context of these goals. The aim of this approach is to help agencies understand project delivery method attributes and to help them determine whether their specific project goals align with the attributes of a particular delivery method. The Tier 1 approach also provides a “go/no go” review to determine whether one or more project delivery methods should be excluded from the examination.

At the completion of the Tier 1 approach, there is a possibility that an agency may not have one clear and logical choice for a project delivery method. If this is the case, the agency will be advised to move to the Tier 2 or Tier 3 approaches with the best delivery method options yielded in the application of the Tier 1 approach and create a more detailed analysis to select the final project delivery method.

The Tier 1 approach includes six distinct steps listed below and shown in Figure 4.1:

- Step 1. Create Project Description
- Step 2. Define Project Goals
- Step 3. Review Go/No Go Decision Points
- Step 4. Review Project Delivery Method Advantages and Disadvantages
- Step 5. Choose Most Appropriate Project Delivery Method
- Step 6. Document Results

The objective of Step 1 is to create a project description in sufficient detail for documenting the project delivery decision. A template is provided to assist agencies in describing the appropriate level of detail. The description is provided to summarize the key variables and provide a “snapshot” of the project scope at the time when the project delivery decision was made.

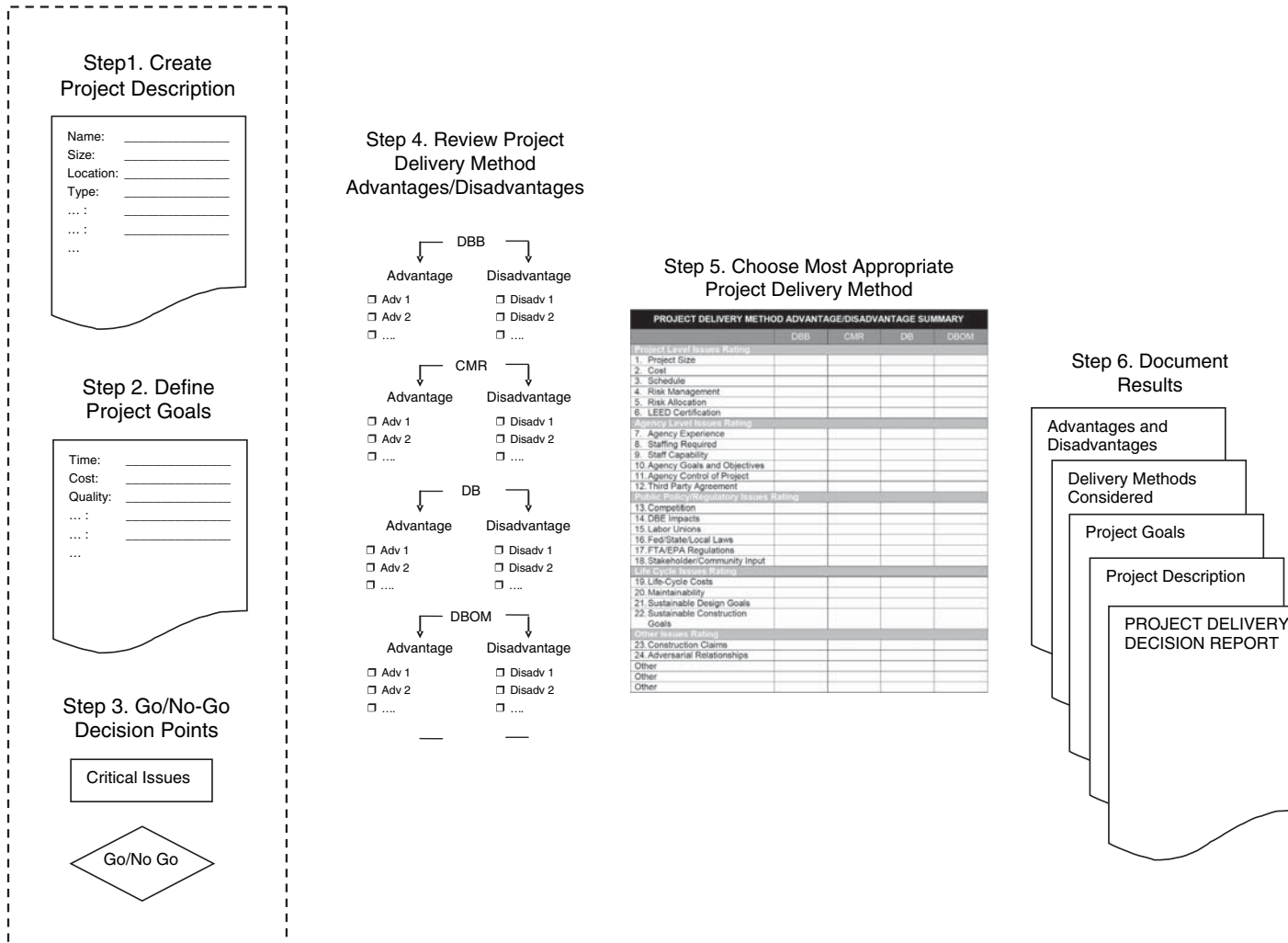


Figure 4.1. Overview of Tier 1 approach.

Research and practical experience have shown that the definition of project goals is a key success factor in the project delivery decision. The objective of Step 2 is to provide guidance to agencies on how to write and rank their project goals. The guidance provides general categories for goals. This section also provides examples of goals from transit projects across the country to show how agencies have defined their project goals for a variety of project delivery methods.

Materials for completing Steps 1 and 2 (a project description checklist and a blank form on which to document the project goals and objectives) are included in Appendix C, available on the TRB website at http://trb.org/news/blurb_detail.asp?id=10054.

The objective of Step 3 is to exclude those project delivery methods from consideration that are not viable options. A legal review of project delivery and procurement laws in the United States revealed that some delivery methods are not allowed in all states. There are additional schedule and third-party issues that could exclude a delivery method from consideration. Step 3 describes a quick go/no-go decision process to determine whether a delivery method should be excluded from consideration.

The primary objective of Step 4 is to present a comprehensive listing of the generic *potential* advantages and disadvantages of each delivery method in 24 critical areas (forms for working through Step 4 are included in Appendix D, available on the TRB website at http://trb.org/news/blurb_detail.asp?id=10054). *These potential advantages and disadvantages must be examined in the context of each individual project.* Variations in the *project* characteristics, the *people* involved, and the *processes* used by an agency (the “three Ps”) will determine whether the *potential* advantages or disadvantages of a project delivery method are *actual* advantages or disadvantages for a particular project. In Step 4, agencies will have to consider actual advantages and disadvantages and rate each project delivery method as “most appropriate,” “appropriate,” or “least appropriate or not applicable” on each of the 24 issues. A form for this rating and a structure for documenting comments are provided (see Table 4.29 and Appendix D).

The objective of Step 5 is to make the final project delivery choice if a dominant or obvious choice exists. Upon the transference of the 24 individual ratings from Step 4 into an overall summary, agencies must determine whether there is a dominant choice. In Step 5, the agencies consider the significant benefits of what appears to be the most appropriate delivery method as well as any risks or fatal flaws of that delivery method. If a dominant method is not apparent, the user will document the Tier 1 approach and move to the Tier 2 approach for further analysis of the most applicable methods emerging from the Tier 1 analysis.

The objective of the final step, Step 6, is to provide a framework for documenting the decision made on the basis of the Tier 1 approach. This is done in the form of a Project Delivery Decision Report. This report will provide an archival record for the project delivery decision. It will serve to communicate the decision to interested stakeholders and to justify the decision if issues arise years later. The framework organizes the report into sections that follow the five previous steps in the Tier 1 approach—project description, definition of project goals, go/no go decision points, advantages and disadvantages, delivery method decision, and any relevant appendices.

Step 1. Create Project Description

The first step in the Tier 1 approach involves the creation of a concise, yet comprehensive, project description that serves to communicate the important project characteristics to decision-makers and also to provide a “snapshot” of the project scope at the time in which the project delivery decision was determined. Projects differ in scope of work and major elements (e.g., people

involved, physical project characteristics, project duration, project budget, and so forth). The project description should include necessary information about the project and address all aspects of the project that may be influenced by the selected delivery method. The project description will serve to communicate the decision to interested stakeholders and to justify the decision if issues arise years later. Below is a checklist of the important project characteristics that should be covered in the project description (see Figure 4.2 for an example of a project description):

- Project Name
- Location
- Mode of Transportation
- Estimated Budget

Project Name: Weber County to Salt Lake City Commuter Rail Project.

Location: Utah.

Mode of Transportation: Commuter Rail.

Estimated Budget: \$196 million for the main contract (total program is estimated at \$611 million).

Estimated Project Delivery Period: 6 years (including design phase).

Required Delivery Date: September 2008.

Source(s) of Project Funding: FTA and Local Sales Tax.

Project Corridor: From Pleasant View through the new Ogden Transit Center at 2349 Wall Street, in Downtown Ogden, and terminating at the Salt Lake City Intermodal Center at 600 West 200 South Street, just west of the central business district.

Project Corridor Dimensions: 43 miles with 8 stations, starting from Pleasant View, Ogden, Roy, Clearfield, Layton, Farmington, Woods Cross, and North Temple in Salt Lake City (Future) and finishing at the Salt Lake Intermodal Center. Additionally, the project has 6 parking lots in its design.

Major Features of Work: Track, at-grade stations, platforms, and parking lots.

Ridership Forecast: 11,800 average weekday boarding.

Major Schedule Milestones: Project completion date—September 2008.

Major Project Stakeholders: Utah Transit Authority (UTA), Union Pacific-Santa Fe Railroad, FTA, and local jurisdictions.

Labor Union Status: No labor union issues anticipated.

Major Challenges:

- UTA entered into an interlocal agreement to build in the existing freight rail corridor with the jurisdictions that it passed through to be able to build without the need to procure building permits from every single local entity.
- The entire project requires working within 25 feet of the active mainline Union Pacific Railroad corridor from Salt Lake City to Ogden, which has up to 35 trains a day passing through at speeds up to 70 mph. The project runs through 14 different municipalities and intersects at 42 road crossings.

Main Identified Sources of Risk: Storm drainage system, safety of construction (narrow corridor), coordination with Union Pacific for the work that Union Pacific has to do, unsuitable soil conditions, incomplete design on some aspects of the work such as station design.

Sustainable Design and Construction Requirements: Enhance the environment through less traffic congestion and pollution.

Figure 4.2. Project description example.

- Estimated Project Delivery Period
- Required Delivery Date (if applicable)
- Source(s) of Project Funding
- Project Type (In Street, Rail Corridor, etc.)
- Project Corridor or Site Dimensions
- Major Features of Work—track, stations, parking structures, platforms, etc.
- Ridership Forecast
- Rate of Return on Capital Investment/Payback Period (if applicable)
- Major Schedule Milestones
- Major Project Stakeholders
- Labor Union Status
- Major Challenges (if applicable)
 - With Right of Way, Utilities, and/or Environmental Approvals
 - During Construction Phase
 - During Operation and Maintenance
- Main Identified Sources of Risk
- Sustainable Design and Construction Requirements

Step 2. Define Project Goals

Defining and communicating a concise set of project goals is perhaps the most important element in selecting an appropriate project delivery method. The importance of project goals in delivery method selection cannot be overemphasized. The definition of project goals is a key success factor not only in the project delivery decision, but also in the development of procurement documents and the administration of a project. The project will have technical goals that must be met (e.g., meeting anticipated ridership, meeting design standards, meeting safety standards, and so forth) and will also have performance goals regarding time, cost, quality, maintainability, and sustainability that must be met. The performance goals typically drive the project delivery decision.

At project inception, the agency must identify the various performance aspects of the project that must meet its requirements. Generally, these performance aspects will fall into the categories of cost, schedule, and quality as defined by the technical design. Of these three factors, one factor will be the most important for the project's ultimate success—the preeminent factor. In order to achieve goals related to this preeminent factor, an agency would be willing to sacrifice pieces of the other two factors. For example, for its University Line, the Utah Transit Authority (UTA) in Salt Lake City had a fixed budget and certain quality standards to maintain; however, schedule was the preeminent factor because the project had to be finished before the start of the 2002 Winter Olympics. The primary importance of schedule was a major reason that UTA selected DB project delivery. In this case, the owner could not complete the necessary work using the traditional process (DBB) in time to meet the deadline.

A clear and concise definition of project goals not only assists with selecting an appropriate project delivery method, it also provides a clear measure for project success and clear directions for the CM or design-builder to complete the project. Project goals set the stage for decision-makers throughout the project lifecycle and keep the project priorities before decision-makers as they analyze different delivery methods. Project goals influence choice of procurement method, risk-allocation strategies, contracting, progress monitoring, and, at the end of the project, evaluation of project outcome.

To define project goals, thinking in terms of performance categories can be helpful. Schedule, cost, quality, and sustainability are common categories. Table 4.1 provides some examples of generic goals in these categories.

Table 4.1. Examples of generic project goals.

<p>Schedule</p> <ul style="list-style-type: none"> • Minimize project delivery time • Complete the project on schedule • Accelerate start of project revenue <p>Cost</p> <ul style="list-style-type: none"> • Minimize project cost • Maximize project budget • Complete the project on budget 	<p>Quality</p> <ul style="list-style-type: none"> • Meet or exceed project requirements • Select the best team <p>Sustainability</p> <ul style="list-style-type: none"> • Minimize impact on the environment • Achieve LEED certification
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Choosing the goals that apply to a specific project is the second step in an agency’s selection of a delivery method. The third, and equally important step, is the ranking of the goals. Table 4.2 provides examples of goals from transit projects in which alternative delivery methods were used.

The project goals in Table 4.2 vary in style and emphasis due to the unique needs of each project, but the goals all clearly link to the benefits of the project’s delivery method. For example, CMR was selected for the Portland Mall project in Oregon because there was a project goal of minimizing disruption to business and minimizing traffic control issues during construction. CMR helps with both of these goals through the contractor’s early involvement in design (something that is absent from the DBB method). Likewise, in the T-REX project, the design-builder’s involvement in design helped to meet the agency’s primary goal of minimizing inconvenience. Additionally, the ability to confirm a fixed price and schedule early in design in the DB method facilitates the goals of meeting or beating the total program budget and schedule.

Although not all the ranking of goals in Table 4.2 was provided by the project owners, ranking of the project goals is important. On every project there are tradeoffs among schedule, cost, and quality. It is to the project’s benefit if the agency, designers, and constructors are aware of, understand, and are in agreement with these project goals. For example, the Rail Runner’s first project goal is not to exceed the program budget and the third project goal is to minimize inconvenience to the public. This ranking provides clear direction to the design-builders that maintenance of traffic is important, but not at the expense of exceeding the program budget.

As previously stated, understanding and communicating a concise set of project goals is perhaps the most important element in selecting an appropriate project delivery method. Agencies should take the time to identify project goals and achieve consensus on their relative importance. This time will be well spent as it will make the project delivery decision clearer. Defining and ranking project goals will also help to define and communicate the criteria for determining overall project success, thereby informing designers and constructors of the agency’s project performance measures.

Step 3. Review Go/No-Go Decision Points

Among the pertinent issues that affect the project delivery decision, there are certain issues that render one or more delivery methods inappropriate. These issues involve project schedule constraints; federal, state, and local laws; third-party agreements; and labor union agreements. These issues and how they relate to the four primary delivery methods are shown in Table 4.3. The transit agency needs to review these issues to determine if they eliminate any of the delivery methods. In other words, the agency should make a go/no-go decision based on these pertinent issues. The result of this go/no-go study is a listing of delivery methods available to the agency and a documentation of those that are not available for further consideration. The flowchart in Figure 4.3 depicts a step-by-step approach to the decision; a description of the approach follows.

Table 4.2. Examples of project goals.

Project	Delivery Method	Project Goals*
Portland Mall Project, Oregon	CMR	<ol style="list-style-type: none"> 1. Work with builder to minimize disruption to businesses along right-of-way; 2. Minimize traffic control issues during construction; 3. Add auto and bike access routes in multimodal approach; and 4. Enhance commitment to public art program by furnishing space for expanded sculpture.
Weber County to Salt Lake City Commuter Rail, Utah	CMR	<ol style="list-style-type: none"> 1. Maximize cost-effectiveness by using a “bare bones/no frills” approach to design in order to meet the project budget and qualify for federal New Starts funding; 2. Deliver ridership by developing a system that delivers short trip duration and on-time performance; 3. Solicit federal funding; 4. Develop means for outside local match dollars to be incorporated into the project; 5. Encourage involvement in the project development process by including internal and external stakeholders; and 6. Build a sense of project ownership with the public and community stakeholders.
Transportation Expansion Project (T-REX), Colorado	DB	<ol style="list-style-type: none"> 1. Minimize inconvenience to the community, motorists, and the public; 2. Meet or beat the total program budget; 3. Provide for a quality project; and 4. Meet or beat the schedule of June 30, 2008.
Rail Runner Phase 2, New Mexico	DB	<ol style="list-style-type: none"> 1. Cost not to exceed project budget established at \$140,000,000; 2. High-quality, safe, environmentally responsible, durable, and maintainable project that meets or exceeds all performance specifications and design criteria; 3. Minimum disruption to the traveling public during construction; 4. Contract awarded and Notice to Proceed (NTP) issued by August 31, 2007; 5. Completion of the entire project by October 31, 2008, the Mandatory Completion Date, as specified in Contract Documents Part 1, Special Provision 108, Subsection 108.4.1; and 6. Valid basis for continued evaluation of DB delivery system.
Hudson-Bergen Light Rail, New Jersey	DBOM	<ol style="list-style-type: none"> 1. Increase project delivery speed from lengthy planning and slow design pace; 2. Seek innovation in cost savings throughout the lifecycle; 3. Seek innovative financing if possible; and 4. Maximize owner staffing capabilities.

*The project goals from the T-REX and Rail Runner projects were published in the RFP. The project goals for the Portland Mall project were published in the Tri-Metropolitan County Transportation District fact sheet. The Weber County to Salt Lake City Commuter Rail goals were published in internal project development documents. The Hudson-Bergen Light Rail goals were stated in research interviews.

As depicted in the flowchart in Figure 4.3, the agency should first conduct research into the pertinent issues of federal, state, and local laws; project schedule constraints; third-party agreements; and labor union agreements. Federal, state, and local laws can be researched by the agency’s general counsel to identify any constraints that must be met during the project delivery method selection process. For example, a jurisdiction with a law that requires award of

Table 4.3. Go/no-go issue summary.

Issues	DBB	CMR	DB	DBOM
Project Schedule Constraints	✓ / X			
Federal/State/Local Laws		✓ / X	✓ / X	✓ / X
Third-Party Agreements			✓ / X	✓ / X
Labor Unions				✓ / X

Note. Shaded areas do not need to be considered by the user.
 ✓ / X = Go/no-go decision point

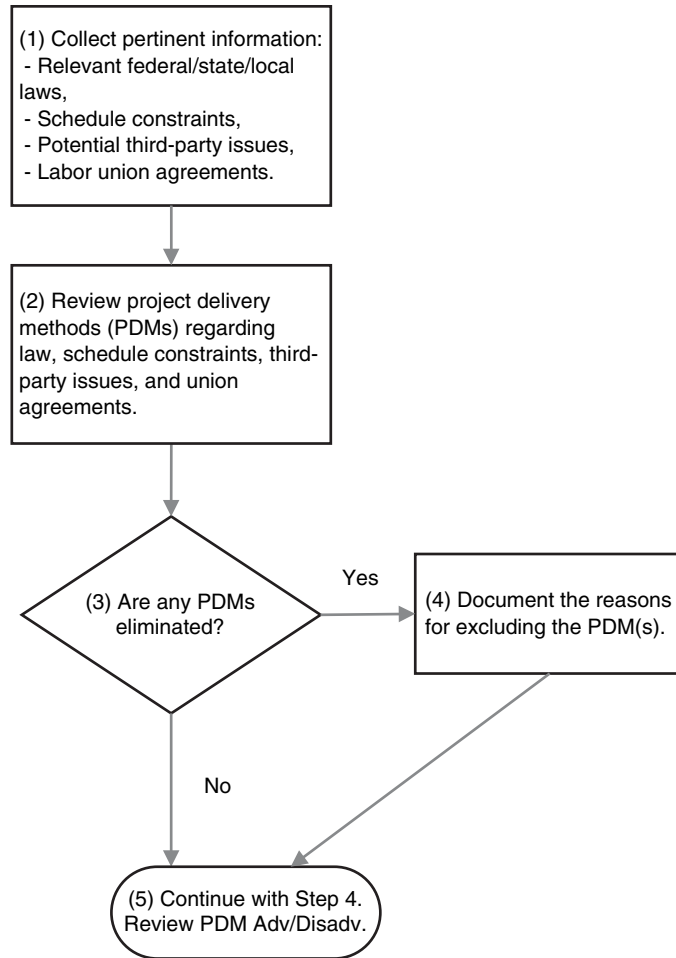


Figure 4.3. Go/no-go decision points.

construction contracts to the low bidder may have to adopt the low-bid DB award method in order to use DB project delivery. Next, the agency should review any major milestones that could create schedule constraints that would prohibit a traditional DBB delivery (e.g., an aggressive fixed end date, funding availability windows, and so forth). The agency then needs to determine the third-party agreements that will be required (e.g., railroad, utility, permitting, and so forth). Finally, the owner should collect any union agreements that deal with operations and maintenance issues of the transit system.

The agency's next step is to analyze the results of their review of pertinent issues in relation to the constraints of each delivery method. As depicted in Table 4.3, an issue may exclude one or two of the delivery methods from further consideration. For example, if the project is located in a state where the law does not authorize CMR, this agency can eliminate CMR from the list of available options. Details follow for each of the go/no-go issues.

Project Schedule Constraints

The traditional DBB delivery method is a linear process that requires the longest delivery period of all four methods. If a DBB project delivery will not yield a finish date within the project's constraints, DBB need not be considered further. As mentioned in the previous section on project goals, project schedule can be a preeminent factor in project success. Agencies frequently

give schedule first priority among competing project goals. Agencies most frequently cite shortening project duration as the reason for using delivery methods other than DBB.

Another case of schedule constraint is an agency that would like to award construction before the design is complete. The DBB method will not accommodate this constraint. This kind of schedule constraint may arise when the agency has a fiscal year budget for construction and needs to award the project before the design is finished or when the agency has an opportunity to complete a portion of the project before the design is complete (e.g., beginning construction before the end of the construction season).

Federal/State/Local Laws

Under TCRP Project G-08, a comprehensive survey was conducted of federal and state laws as they pertain to alternative delivery methods. While some states have fully authorized transit agencies to use CMR, DB, and DBOM, there are still some states that prohibit the use of one or all alternative methods. Along with states that allow full use of alternative delivery methods and those that prohibit the use of all or some of the alternative delivery methods, there are states that allow alternative project delivery methods as long as certain conditions are met (e.g., requiring extra approvals for projects with alternative delivery methods, putting dollar value limits on the volume of DB or CMR contracts that a state may authorize, or putting limits on the number of projects using an alternative delivery method that a state may authorize each year). Although the results of the survey (based on state laws in December 2006) are included in this report for reference, state laws often change, and it would therefore be prudent for transit agencies to check relevant state and local laws at the time that a particular project delivery method is under consideration.

If the federal, state, or local laws prohibit an agency from using an alternative delivery method, generally speaking, it should not be considered further. However, in some cases agencies have determined that the use of a particular alternative delivery method was essential for project success and have been successful in drafting legislation to permit an alternative delivery method for a particular project or for general use. For example, DB was not permitted in the State of Colorado when the T-REX project was envisioned. The Regional Transportation District, in concert with the Colorado Department of Transportation, helped to pass legislation permitting use of DB as a project delivery method. These agencies pursued this approval as they developed the project scope. If an agency decides to take this path, it is wise to have a contingency plan for traditional delivery in case the legislation is not approved. This contingency plan should be developed with an awareness of the duration of the process, the likelihood of achieving approval, and the benefits of using the alternative delivery method. Local laws may also place barriers on the use of a specific delivery method, so they should be checked along with the state laws.

Third-Party Agreements

All major transit projects affect third parties and require agreements to manage the impacts. Some third parties require a completed set of construction documents to execute an agreement. In this case, the requirement for a complete design renders DB and DBOM inappropriate. For example, if the right-of-way is shared by the project and a railroad company, a full set of drawings may be required by the railroad company prior to signing an agreement or a memorandum of understanding (MOU). In such a project, depending on the circumstances and the rigidity of the third party, DB and DBOM might be eliminated from the list of available options.

Table 4.4. Go/no-go summary form.

Issues	DBB	CMR	DB	DBOM
Project Schedule Constraints				
Federal/State/Local Laws				
Third-Party Agreements				
Labor Unions				

Note. Shaded areas do not need to be considered by the user.

✓ = Applicable for further study

X = Not applicable (discontinue evaluation of this method)

Comments _____

Labor Unions

In the states where public sector labor unions are dominant, this issue may affect the choice of delivery methods. It primarily affects DBOM delivery in cases where public unions control the operation and maintenance of the transit project. Public labor unions can also affect DB delivery in places where transit agencies traditionally complete design with public-sector designers. In both of these cases, agency maintenance employees or designers may not allow a delivery method that can outsource jobs to the private sector. In these cases, DBOM or DB may be eliminated from the list of available options.

Upon reviewing these four go/no-go issues, agencies will have a list of viable delivery methods to further consider. Additionally, they should document the reasons for excluding any methods from further consideration. Table 4.4 provides a form for summarizing this go/no-go analysis.

Step 4. Review Project Delivery Method Advantages and Disadvantages

Step 4 of the project delivery decision involves a critical examination of the advantages and disadvantages of each remaining delivery method. There is no single project delivery method that is appropriate for every project. The objective of this critical examination of the advantages and disadvantages of the delivery methods is to determine how well each method aligns with project goals, project characteristics, agency characteristics, policy/regulatory issues, and lifecycle requirements.

In Step 4, agencies examine 24 separate issues that affect project delivery method selection (see Chapter 3 for a discussion of these issues) and rate the appropriateness of each delivery method in relation to each issue. For each issue, an Advantages/Disadvantages Form listing the general advantages/disadvantages of each project delivery method for that issue and an Issue Summary Table are provided. To determine the appropriateness of each project delivery method in relation to a particular issue, agencies should understand the issue, analyze the delivery methods, and complete the Issue Summary Table.

These three actions are described in more detail in the following:

- **Understand the issue.** Read the brief description of each issue. Refer to Chapter 3 for an expanded description of the issue if needed.
- **Analyze the delivery methods.** Using the Advantages/Disadvantages Form provided, review the advantages and/or disadvantages of each delivery method in relation to the issue. Please

note that the advantages and disadvantages listed in the Advantages/Disadvantages Form are based on general experience with that issue; a specific project may have characteristics that will affect how knowledge gained from general experience applies. Users are urged to consider these general advantages and disadvantages as they apply *to the specific project in question*. Refer to Chapter 3 for an expanded description of the issue if needed.

- **Complete the Issue Summary Table.** Upon reviewing the advantages and disadvantages of each delivery method in relation to the issue and analyzing the implications for the specific project in question, rate the appropriateness of each delivery method in the Issue Summary Table using the following symbols:

- – Most appropriate
- – Appropriate
- – Least appropriate
- X – Not applicable

The 24 issues to be considered are presented below grouped into the five categories in which they were introduced in Chapter 3:

- Project-level issues,
- Agency-level issues,
- Public policy/regulatory issues,
- Lifecycle issues, and
- Other issues.

Project-Level Issues

Issue 1: Project Size

Project size reflects the dollar value and physical dimensions of the transit corridor.

Advantages/Disadvantages Form—Project Size

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> DBB has been shown to work on projects of all sizes.	<input type="checkbox"/> As projects grow in size, the amount of owner staffing required to oversee DBB can become very large.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> CMR has been shown to work on projects of all sizes.	<input type="checkbox"/> If not managed well, the use of multiple bid packages to facilitate CMR can be difficult.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> DB has been shown to work on projects of all sizes.	<input type="checkbox"/> As projects grow in size, there can be large peaks in owner staffing requirements with DB (e.g., during RFP development, during design review, etc.).
<input type="checkbox"/> Some owners have noted that DB can facilitate better management of large projects due to the single source of responsibility.	

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> DBOM is appropriate for large projects.	<input type="checkbox"/> DBOM is not appropriate for smaller projects due to the overhead costs (e.g., for maintenance etc.)
<input type="checkbox"/> Similar to DB, DBOM can facilitate better management of large projects due to the single source of responsibility.	
	<input type="checkbox"/> Similar to DB, DBOM can necessitate large peaks in owner staffing requirements.

Table 4.5. Project size advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
1. Project Size				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 2: Cost

This issue includes several aspects of project cost, such as ability to handle budget restrictions, early and precise cost estimation, and consistent control of project costs.

Advantages/Disadvantages Form—Cost

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<ul style="list-style-type: none"> <input type="checkbox"/> Costs are known at bid time, before construction begins. <input type="checkbox"/> Project can benefit from low bid procurement. <input type="checkbox"/> Project can benefit from unit price bidding because quantities are defined prior to procurement. 	<ul style="list-style-type: none"> <input type="checkbox"/> Construction costs are not fixed (or locked in) until design is 100% complete. <input type="checkbox"/> Constructability advice and contractor innovations are not available to lower cost until post bid. <input type="checkbox"/> The DBB process is prone to change orders and cost growth after award.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<ul style="list-style-type: none"> <input type="checkbox"/> CMR can be used in conjunction with a GMP pricing structure, which can be useful in negotiating and controlling costs. <input type="checkbox"/> If open book pricing can be used, all costs will be known by the owner. <input type="checkbox"/> Costs will be known earlier when compared to DBB. <input type="checkbox"/> Early constructor involvement or construction advice can lead to cost savings through value engineering and constructability reviews. 	<ul style="list-style-type: none"> <input type="checkbox"/> If multiple bid packages are used, the overall project cost could grow if later bid packages cost more than estimated. <input type="checkbox"/> If a GMP pricing structure is used, owners may have some difficulty in negotiation.

Design-Build (DB)	
Advantages	Disadvantages
<ul style="list-style-type: none"> <input type="checkbox"/> If a lump sum pricing structure is used, costs will be fixed early in the project development process. <input type="checkbox"/> DB has been shown to have lower average cost growth than DBB or CMR. 	<ul style="list-style-type: none"> <input type="checkbox"/> If a lump sum pricing structure is used, constructors must develop prices before plans are 100% complete and therefore must assume some risk in pricing.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Owner is provided with fixed cost for design, construction, and maintenance very early in the process.	<input type="checkbox"/> Due to the large amount of risk being taken by the DBOM provider, costs may be higher if the providers are not given opportunities to find efficiencies. <input type="checkbox"/> DBOM pricing may be hard to negotiate due to the complexity and timeframe of maintenance contracts.

Table 4.6. Cost advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
2. Cost				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 3: Schedule

This issue includes two aspects of project schedule—the ability to shorten the schedule and the opportunity to control and prevent time growth.

Advantages/Disadvantages Form—Schedule

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> None.	<input type="checkbox"/> Likely to yield longest delivery schedule. <input type="checkbox"/> Likely to yield the largest schedule growth. <input type="checkbox"/> There is no opportunity to compress schedule due to the linear nature of DBB.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Facilitates fast-tracking, or the ability to bid multiple design packages. <input type="checkbox"/> Studies have shown that CMR is faster on average than DBB, but slower than DB.	<input type="checkbox"/> Risk that overlapping design and construction packages may create delays if not properly coordinated. <input type="checkbox"/> Fast-tracking schedule will require owner effort in design and construction reviews.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> Provides a single point of responsibility (DB contractor) for schedule control. <input type="checkbox"/> Provides early schedule certainty. <input type="checkbox"/> Historically, provides the least schedule growth. <input type="checkbox"/> Provides opportunities for flexibility in schedule compression. <input type="checkbox"/> Studies have shown that DB is faster on average than DBB or CMR.	<input type="checkbox"/> Owner will sacrifice the checks and balances of having a 100%-complete design prior to start of construction. <input type="checkbox"/> Rapid schedule will require owner effort in design and construction reviews.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<ul style="list-style-type: none"> <input type="checkbox"/> Provides a single point of responsibility (DB contractor) for schedule control. <input type="checkbox"/> Provides early schedule certainty. <input type="checkbox"/> Historically provides the least schedule growth. <input type="checkbox"/> Provides opportunities for flexibility in schedule compression. <input type="checkbox"/> Will facilitate start-up process due to a single point of responsibility for design, construction, and operation. <input type="checkbox"/> Historically faster than DBB or CMR. 	<ul style="list-style-type: none"> <input type="checkbox"/> Owner will sacrifice the advantage of having complete design prior to start of construction. <input type="checkbox"/> Rapid schedule will require owner effort in design and construction reviews.

Table 4.7. Schedule advantages/disadvantage summary.

Issue	DBB	CMR	DB	DBOM
3. Schedule				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 4: Risk Management

This issue involves methods for coping with project uncertainties that are inherent in each delivery method. For more detailed guidance, please see Tier 3 for a risk-based approach to selecting project delivery methods.

Advantages/Disadvantages Form—Risk Management

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<ul style="list-style-type: none"> <input type="checkbox"/> Provides historically well-defined and well-understood risk-management processes. <input type="checkbox"/> Prescriptive designs and specifications allow for greater detail in risk allocation. 	<ul style="list-style-type: none"> <input type="checkbox"/> Constructor cannot participate in risk management during design. <input type="checkbox"/> Constructor’s ability to manage risk is constrained by low-bid procurement.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<ul style="list-style-type: none"> <input type="checkbox"/> Construction manager understands and participates in risk-management process during design. 	<ul style="list-style-type: none"> <input type="checkbox"/> Risk-management process can be more complex due to separate design, construction, and construction management contracts.

Design-Build (DB)	
Advantages	Disadvantages
<ul style="list-style-type: none"> <input type="checkbox"/> Single point of responsibility for risk management in design and construction. 	<ul style="list-style-type: none"> <input type="checkbox"/> Owner may lose some ability to participate in the risk-management process.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Single point of responsibility for risk allocation in design, construction, operation, and maintenance.	<input type="checkbox"/> Owner may lose some ability to participate in the risk-management process for design, construction, operation, and maintenance.

Table 4.8. Risk-management advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
4. Risk Management				

- Key:
- Most appropriate delivery method
 - Appropriate delivery method
 - Least appropriate delivery method
 - X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 5: Risk Allocation

Each project delivery method has characteristics that affect risk allocation. The overarching goal should be to select the project delivery method that assigns project risks to the parties in the best position to manage them.

Advantages/Disadvantages Form—Risk Allocation

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> A clear risk allocation has been established due to history of use and statutory case law.	<input type="checkbox"/> Constructor cannot participate in risk-allocation discussions during design. <input type="checkbox"/> Conflicts can exist in risk allocation between separate design and construction contracts.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Construction manager understands and participates in risk allocation during design. <input type="checkbox"/> Prescriptive designs and specifications allow for greater detail in risk allocation.	<input type="checkbox"/> Conflicts can exist in risk allocation among the separate design, construction, and construction management contracts.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> Provides a single party for risk allocation in both design and construction. <input type="checkbox"/> Design-builder owns risk for design errors and omissions.	<input type="checkbox"/> Risks must be allocated through conceptual design and performance specifications.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Provides single-party risk allocation in design, construction, and maintenance. <input type="checkbox"/> Constructor owns risk for design errors and omissions in construction, operations, and maintenance.	<input type="checkbox"/> Risks must be allocated through conceptual design and performance specifications for design, construction, operation, and maintenance.

Table 4.9. Risk-allocation advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
5. Risk Allocation				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 6: LEED Certification

This issue concerns obtaining LEED certification for a project. Each project delivery method needs to be examined to discover its ability to include features that will facilitate obtaining LEED certification in accordance with the owner’s needs.

Advantages/Disadvantages Form—LEED Certification

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> LEED certification can be established in more detail during design period.	<input type="checkbox"/> Provides the least opportunity for constructor to participate in LEED process during design. <input type="checkbox"/> Separate design packages can create difficulty in coordinating LEED elements in construction.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Construction manager can offer its construction expertise during design decisions that involve LEED issues.	<input type="checkbox"/> Separate design packages can create difficulty in coordinating LEED elements in construction.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> Owner can use some LEED certification elements to select constructor. <input type="checkbox"/> Single point of responsibility is provided for LEED certification in design and construction.	<input type="checkbox"/> Owner may not be involved in all LEED decisions.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Owner can use some LEED certification elements to select constructor. <input type="checkbox"/> In addition to having a single point of responsibility provided for LEED certification in design and construction, many LEED principles are in alignment with the constructor’s motivation to minimize operating costs.	<input type="checkbox"/> Owner may not be involved in all LEED decisions.

Table 4.10. LEED Certification Advantages/Disadvantages Summary.

Issue	DBB	CMR	DB	DBOM
6. LEED Certification				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Agency-Level Issues

Issue 7: Agency Experience

The level of experience of an owner’s staff can affect the success of an alternative project delivery method application.

Advantages/Disadvantages Form—Agency Experience

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> Since this is the traditional method of project delivery, owners will likely have the most experience with this method.	<input type="checkbox"/> None.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> CMR is similar to DBB in many key aspects where agencies have experience (e.g., separation of design and construction).	<input type="checkbox"/> Agencies may not have experience with GMP pricing or the negotiation that can be involved. <input type="checkbox"/> Agencies may not have experience in the use of multiple bid packages to facilitate fast-track construction.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> Agencies can take advantage of the sole point of responsibility for design and construction to leverage their experience.	<input type="checkbox"/> Agencies may not have experience authoring DB RFPs and conducting procurements. <input type="checkbox"/> Agencies may not have experience administering DB contracts, particularly in the area of design review and administration. <input type="checkbox"/> DB necessitates experienced staff to manage design and construction under one contract.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Similar to DB, agencies can take advantage of the sole point of contact for design, construction, and maintenance to leverage their experience.	<input type="checkbox"/> Agencies may not have experience authoring DBOM RFPs and conducting procurements. <input type="checkbox"/> Agencies may not have experience administering DBOM contracts, particularly in the area of design review and administration. <input type="checkbox"/> DBOM necessitates the most experienced staff to manage design, construction, and maintenance under one contract.

Table 4.11. Agency experience advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
7. Agency Experience				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 8: Staffing Required

This issue ultimately concerns the amount of owner involvement required by each delivery method. The total number of owner employees is one measure of the extent of owner involvement. Another important measure for the owners is the variation in the number of staff required throughout the project development process.

Advantages/Disadvantages Form—Staffing Required

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> The separation of design and construction phases provides less variation in owner staffing levels.	<input type="checkbox"/> DBB typically requires a larger owner staff than the other delivery methods. <input type="checkbox"/> DBB typically requires a higher level of owner involvement.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> The CMR alternative can use the least number of owner employees if the CMR is allowed to take on the traditional owner tasks.	<input type="checkbox"/> The owner will need to have a number of staff members with the ability to oversee and negotiate with the CMR during the process.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> DB can greatly reduce the number of required owner employees <input type="checkbox"/> Design and construction reviews can be done in shorter periods of time.	<input type="checkbox"/> DB creates peaks in owner staffing needs, particularly during procurement and design review periods. <input type="checkbox"/> While fewer owner staff members are needed, more experienced staff members are required.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Similar to DB, DBOM can greatly reduce the number of required owner staff members. <input type="checkbox"/> Design and construction reviews can be done in shorter periods of time.	<input type="checkbox"/> DBOM can create larger peaks in owner staffing needs during procurement and design review due to the inclusion of maintenance and finance issues in the process. <input type="checkbox"/> While fewer owner staff members are needed, more experienced staff members are required.

Table 4.12. Staff required advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
8. Staff Required				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 9: Staff Capability

This issue regards the owner’s requirement to furnish a highly capable staff to complete the duties it must undertake in each delivery method.

Advantages/Disadvantages Form—Staff Capability

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> DBB is traditionally aligned with owner staff capabilities.	<input type="checkbox"/> As projects grow in size, a more experienced staff is required. <input type="checkbox"/> Owners typically have different staff members to oversee design and construction processes.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> The CMR can augment an owner’s capabilities with his own staff.	<input type="checkbox"/> Owners must have experienced staff to oversee the CMR. <input type="checkbox"/> Owners may lack some capability in negotiating prices, developing designs, and managing the constructor’s inputs during the design phase.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> One entity will be responsible for both design and construction.	<input type="checkbox"/> Similar to CMR, DB is an alternative delivery method, and it is advisable to have staff members with DB oversight experience. <input type="checkbox"/> Owners will need staff capabilities in developing procurement documents and performance criteria. <input type="checkbox"/> Owners will need staff capabilities in reviewing design under a DB contract.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> One entity will be responsible for design, construction, operations, and maintenance.	<input type="checkbox"/> Similar to DB, DBOM is an alternative delivery method, and it is advisable to have staff members with DBOM oversight experience. <input type="checkbox"/> Owners will need staff capabilities in developing procurement documents and performance criteria. <input type="checkbox"/> Owners will need staff capabilities in analyzing complex financial proposals. <input type="checkbox"/> Owners will need staff capabilities in reviewing design under a DB contract.

Table 4.13. Staff capability advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
9. Staff Capability				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 10: Agency Goals and Objectives

Agency goals define project success. The extent to which these goals align with the inherent attributes of each project delivery method has a significant bearing on delivery method selection.

Advantages/Disadvantages Form—Agency Goals and Objectives

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> The DBB process allows for goals to be defined through the design process.	<input type="checkbox"/> Separate design and construction contracts can make goals more difficult to align and manage. <input type="checkbox"/> If not developed correctly, detailed designs and prescriptive specifications can conflict with agency goals.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Agency can involve the CMR in refinement of goals while working together to refine the scope and the GMP. <input type="checkbox"/> Qualifications-based construction manager selection can align the team with the project goals.	<input type="checkbox"/> The agency must have the goals substantially developed when the construction manager contract is awarded. <input type="checkbox"/> The negotiation of a GMP may inhibit the alignment of project goals between the agency and the construction manager.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> Best-value design-builder selection can align the team with the project goals. <input type="checkbox"/> Properly written procurement performance criteria can help design-builders innovate to achieve project goals.	<input type="checkbox"/> To ensure success, agencies must completely understand goals prior to awarding the DB contract.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> In addition to the DB advantages, DBOM allows owners to include lifecycle and maintenance goals in the contract.	<input type="checkbox"/> Similar to DB, agencies must completely understand goals prior to awarding the DBOM contract.

Table 4.14. Agency goals and objectives advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
10. Agency Goals and Objectives				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 11: Agency Control of Project

The owner’s ability to control the details of design and construction varies with each project delivery method. (Note that discussion of cost control and time control is included in other issue descriptions.)

Advantages/Disadvantages Form—Agency Control of Project

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> The use of prescriptive specifications and complete designs at the time of award provides agencies with the most control over the project. <input type="checkbox"/> Separate design and construction contracts provide clear checks and balances.	<input type="checkbox"/> With additional control come added activities and responsibility for agency staff. <input type="checkbox"/> The DBB method can be prone to change orders if any design conflicts or constructability issues are found.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> The CMR method benefits from early constructor involvement, but still has the benefit of separate design and construction contracts.	<input type="checkbox"/> Agency control of CMR delivery requires more effort due to the use of multiple design packages and the need for a GMP pricing structure.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> The transfer of design liability lessens the need for agency control over design.	<input type="checkbox"/> Award at a conceptual design level means that the agency will lose control over the details of the final design.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> The transfer of design liability lessens the need for agency control over design and maintenance decisions.	<input type="checkbox"/> Award at a conceptual design level means that the agency will lose control over the details of the final design. <input type="checkbox"/> Since the DBOM will be responsible for maintaining the project, the agency could lose control over the detail of some maintenance decisions.

Table 4.15. Agency control of project advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
11. Agency Control of Project				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 12: Third-Party Agreements

Each delivery method can facilitate agreements with third parties, such as political entities, utilities, railroads, etc. in a different manner. The extent to which designers or constructors can facilitate third party agreements is the basis for the advantage and disadvantage of each delivery method.

Advantages/Disadvantages Form—Third-Party Agreement

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> The use of complete plans and prescriptive specifications facilitates third-party agreements.	<input type="checkbox"/> Expediting third-party agreements in the DBB process can be cumbersome if it is required.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Construction managers can help facilitate third-party agreements.	<input type="checkbox"/> Construction managers typically do not guarantee costs that stem from problems with third-party agreements.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> Design-builders can use innovative methods to assist in obtaining third-party agreements.	<input type="checkbox"/> Some third-party agencies can have codes that negate the use of DB, thereby excluding the DB method from consideration (see Step 3 -Review Go/No-Go Decision Points). <input type="checkbox"/> Design-builders typically do not guarantee costs that stem from problems with third-party agreements.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Design-builders can use innovative methods to assist in obtaining third-party agreements.	<input type="checkbox"/> Some third-party agencies can have codes that negate the use of DBOM, thereby excluding the DBOM method from consideration (see Step 3-Review Go/No-Go Decision Points). <input type="checkbox"/> Design-builders typically do not guarantee costs that stem from problems with third-party agreements.

Table 4.16. Third-party agreement advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
12. Third-Party Agreement				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Public Policy/Regulatory Issues

Issue 13: Competition

Each delivery method may affect the level of competition, and thus the effect of each delivery method on competition must be evaluated. Alternative project delivery methods allow agencies to package projects in sizes that can effectively enhance or reduce competition.

Advantages/Disadvantages Form—Competition

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> Owner benefits from large pool of potential bidders and high level of competition.	<input type="checkbox"/> There are issues that follow low-bid procurement, such as a higher probability of requests for change orders, disputes, and claims.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Qualifications-based selection factors can be applied to select only the most highly qualified construction managers.	<input type="checkbox"/> Presence of a constructor early in the project may give the owner less competitive leverage when pricing construction.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> Qualifications-based selection factors can be applied to select only the most highly qualified design-builders.	<input type="checkbox"/> Proposal package size and bid preparation costs can decrease the number of qualified bidders. <input type="checkbox"/> Opposition from public-sector employees, unions, or other interested parties can exclude the DB method from consideration (see Step 3-Review Go/No-Go Decision Points).

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Qualifications-based selection factors can be applied to select only the most highly qualified design-builders.	<input type="checkbox"/> Proposal package size and bid preparation costs can decrease the number of qualified bidders. <input type="checkbox"/> Lengthy contract duration and extra competencies required for the operation and maintenance part of the contract decrease the number of bidders. <input type="checkbox"/> Opposition from public-sector employees, unions, or other interested parties can exclude the DBOM method from consideration (see Step 3-Review Go/No-Go Decision Points).

Table 4.17. Competition advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
13. Competition				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 14: DBE Impacts

The extent to which the delivery methods can be used to promote participation of disadvantaged businesses forms the advantages and disadvantages of this issue.

Advantages/Disadvantages Form—DBE Impacts

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> Agencies can include DBE requirements in both design and construction requirements. <input type="checkbox"/> DBE involvement is known at time of award for design and construction.	<input type="checkbox"/> Low-bidding environment may harm future viability of DBE companies.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Agencies can include DBE requirements in both design and construction requirements. <input type="checkbox"/> DBE involvement is known at time of award for design and construction.	<input type="checkbox"/> Due to the phased nature of CMR contracts, the final DBE involvement may not be known until the project is ultimately completed.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> Agencies can include DBE requirements in the RFP for design and construction requirements.	<input type="checkbox"/> Owners can set DBE requirements, but because all subcontractors are not known at the time of award, there is a risk that design-builders may not achieve the DBE goals that they specify in their proposals.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Agencies can include DBE requirements in the RFP for design, construction, and maintenance requirements.	<input type="checkbox"/> Owners can set DBE requirements, but because all subcontractors are not known at the time of award, there is a risk that design-builders may not achieve the DBE goals that they specify in their proposals.

Table 4.18. DBE impacts advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
14. DBE Impacts				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 15: Labor Unions

The choice of delivery method may have an impact on labor usage and hence labor union issues. These issues can be both internal to the transit agency as well as external with its contractors.

Advantages/Disadvantages Form—Labor Unions

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> The DBB process is well established, so there is generally no fundamental opposition from unions.	<input type="checkbox"/> None.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Similar to DBB, there is generally no fundamental opposition from unions.	<input type="checkbox"/> Construction managers do not generally guarantee prices if there are issues with labor unions.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> None.	<input type="checkbox"/> Opposition from public design unions can exclude the DB method from consideration (see Step 3-Review Go/No-Go Decision Points). <input type="checkbox"/> Design-builders do not generally guarantee prices if there are issues with labor unions.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> None	<input type="checkbox"/> Opposition from public design unions can exclude the DBOM method from consideration (see Step 3-Review Go/No-Go Decision Points). <input type="checkbox"/> Opposition from public maintenance unions can exclude the DB method from consideration (see Step 3-Review Go/No-Go Decision Points). <input type="checkbox"/> Design-builders do not generally guarantee prices if there are issues with labor unions.

Table 4.19. Labor unions advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
15. Labor Unions				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 16: Federal/State/Local Laws

Transit agencies many not be able to use some delivery methods due to state or local laws. Some of the states require that transit agencies go through several steps before being allowed to use an alternative delivery method. The advantages and disadvantages of each project delivery method for this issue reflect the level of difficulty of using a delivery method from a legal standpoint.

Advantages/Disadvantages Form—Federal/State/Local Laws

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> All states are authorized to use DBB.	<input type="checkbox"/> None.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Some states allow more flexible procurement regulations with CMR, which can be advantageous in appropriate situations to expedite project development.	<input type="checkbox"/> Some state agencies are not authorized to use CMR or need to get extra approvals (see Step 3-Review Go/No-Go Decision Points).

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> Some states allow more flexible procurement regulations with DB, which can be advantageous in appropriate situations to expedite project development.	<input type="checkbox"/> Some state agencies are not authorized to use DB or need to get extra approvals (see Step 3-Review Go/No-Go Decision Points).

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Some states allow more flexible procurement regulations with DBOM, which can be advantageous in appropriate situations to expedite project development.	<input type="checkbox"/> State laws and regulations for DBOM are similar to DB (see Step 3-Review Go/No-Go Decision Points).

Table 4.20. Federal/state/local laws advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
16. Federal/State/Local Laws				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 17: FTA/EPA Regulations

The extent to which the various delivery methods can accommodate FTA requirements and EPA regulations given the unique project characteristics constitutes the advantages and disadvantages of this issue.

Advantages/Disadvantages Form—FTA/EPA Regulations

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> Familiarity of agencies with this method facilitates permit and funding process.	<input type="checkbox"/> The final cost and schedule are established long after the Full Funding Grant Authorization (FFGA), which can be problematic if FFGA cost and schedule estimates are not met.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Construction managers can help facilitate the environmental process.	<input type="checkbox"/> The use of a GMP with separate design and construction packages can result in a final cost and schedule confirmation long after the FFGA.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> FTA has gained some experience and has modified its procedures to use DB. <input type="checkbox"/> Cost and schedule are fixed near the FFGA.	<input type="checkbox"/> The design required to acquire environmental permits before hiring a design-builder may cause delays and negate some of the advantages of the DB method.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> FTA has gained some experience and has modified its procedures. <input type="checkbox"/> Cost and schedule are fixed near the FFGA.	<input type="checkbox"/> The design required to acquire environmental permits before hiring a design-builder may cause delays and negate some of the advantages of the DB method.

Table 4.21. FTA/EPA regulations advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
17. FTA/EPA Regulations				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 18: Stakeholder/Community Input

This issue addresses the opportunity for stakeholder involvement afforded by each delivery method.

Advantages/Disadvantages Form—Stakeholder/Community Input

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> Separate design and construction phases provide an opportunity to get stakeholders' inputs before the commencement of construction.	<input type="checkbox"/> The opportunity for stakeholder changes in design can cause delay in the project and add to the costs in the form of change orders.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> The construction experience of the construction manager can help facilitate stakeholder input.	<input type="checkbox"/> Stakeholder input can make GMP negotiation troublesome if not managed correctly.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> The owner can require the DB contractor to include a public information and outreach program to facilitate communities' inputs. <input type="checkbox"/> Design-builders can be innovative in helping gain community involvement.	<input type="checkbox"/> Any change because of community inputs after the issuance of an RFP can be costly.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> The owner can require the DB contractor to include a public information and outreach program to facilitate communities' inputs. <input type="checkbox"/> Design-builders can be innovative in helping gain community involvement.	<input type="checkbox"/> Any change because of community inputs after the issuance of an RFP can be costly.

Table 4.22. Stakeholder/community input advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
18. Stakeholder/Community Input				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Lifecycle Issues

Issue 19: Lifecycle Costs

Delivery methods can influence costs in the operation and maintenance phase. This issue concerns the opportunities or challenges that each delivery method provides with regard to lifecycle costs.

Advantages/Disadvantages Form—Lifecycle Costs

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> The agency can control lifecycle costs through completed design and performance specifications.	<input type="checkbox"/> The DBB system allows for little constructor input into lifecycle costs.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> CMR has all benefits of DBB, plus the agency can leverage the construction manager’s input into lifecycle costs.	<input type="checkbox"/> If lifecycle performance criteria are not well understood during the development of the GMP, lifecycle issues may be difficult to incorporate into the final product.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> The agency can use performance criteria to set lifecycle performance standards and rely on design-builder innovation to achieve these standards.	<input type="checkbox"/> If lifecycle performance criteria are not well understood at the procurement stage, they will not be incorporated into the DB contract.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> The design-builder is responsible for maintenance in the DBOM contract and will be highly motivated to provide optimal lifecycle designs. <input type="checkbox"/> The agency can use performance criteria to set lifecycle performance standards and rely on design-builder innovation to achieve these standards.	<input type="checkbox"/> The agency will not have complete control over all lifecycle issues that are not included as performance criteria in the contract.

Table 4.23. Lifecycle costs advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
19. Lifecycle Costs				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 20: Maintainability

The issue of maintainability involves the owner’s ability to specify quality and ease of maintenance. There are advantages and disadvantages to each delivery method with regard to how maintainability is achieved.

Advantages/Disadvantages Form—Maintainability

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> The opportunity to view completed plans before award allows agencies to review maintenance issues in designs.	<input type="checkbox"/> There is little opportunity for constructors to have input into maintenance issues.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> CMR has all the benefits of DBB, plus the agency can leverage a construction manager’s input into maintenance issues.	<input type="checkbox"/> If maintainability issues are not well understood during the development of the GMP, they may be difficult to incorporate into the final product.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> The agency can emphasize maintainability issues through performance criteria and best-value award factors.	<input type="checkbox"/> If maintainability issues are not well understood at the procurement stage, they will not be incorporated into the DB contract.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> The design-builder is responsible for maintenance in the DBOM contract and will be highly motivated to provide optimal lifecycle designs. <input type="checkbox"/> The agency can emphasize maintainability issues through performance criteria and best-value award factors.	<input type="checkbox"/> The agency will not have complete control over all maintainability issues that are not included as performance criteria in the contract.

Table 4.24. Maintainability advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
20. Maintainability				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 21: Sustainable Design Goals

Sustainable design is becoming ever more important in achieving overall sustainability goals for projects. There are advantages and disadvantages to each delivery method in terms of addressing sustainability issues and incorporating sustainable design in a project.

Advantages/Disadvantages Form—Sustainable Design Goals

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> Agencies can work with designers to incorporate sustainable designs into complete designs.	<input type="checkbox"/> The process provides little opportunity for constructability reviews to ensure that sustainable designs can be constructed efficiently and are not cost prohibitive.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> CMR has all the benefits of DBB, plus the agency can leverage the construction manager’s input into sustainable design issues.	<input type="checkbox"/> The use of separate bid packages can create barriers in the integration of sustainable solutions if not approached correctly.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> The agency can emphasize sustainable design issues through performance criteria and best-value award factors. <input type="checkbox"/> Integration of the design and construction team can enhance constructability of designs.	<input type="checkbox"/> If sustainable design issues are not well understood at the procurement stage, they will not be incorporated into the DB contract.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> The agency can emphasize sustainable design issues through performance criteria and best-value award factors. <input type="checkbox"/> Integration of the design and construction team can enhance constructability of designs. <input type="checkbox"/> DBOM contractors can realize economic returns for sustainable designs since they have an inherent bias toward minimizing operations and maintenance lifecycle costs.	<input type="checkbox"/> If sustainable design issues are not well understood at the procurement stage, they will not be incorporated into the DB contract.

Table 4.25. Sustainable design goals advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
21. Sustainable Design Goals				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 22: Sustainable Construction Goals

In addition to sustainable design, sustainable construction is an important vehicle for achieving overall sustainability goals. There are advantages and disadvantages to each project delivery method with regard to facilitating sustainable construction.

Advantages/Disadvantages Form—Sustainable Construction Goals

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> Prescriptive specifications can be used to define sustainable construction practices prior to construction.	<input type="checkbox"/> There is little opportunity or incentive for constructor to do more than what is specified in terms of sustainable construction practices. <input type="checkbox"/> Agencies can assume liability when prescribing construction methods.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> The agency can leverage the construction manager’s input into sustainable construction issues.	<input type="checkbox"/> The use of separate bid packages can create barriers in the integration of sustainable solutions if not approached correctly.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> The agency can emphasize sustainable construction issues through performance criteria and best-value award factors. <input type="checkbox"/> Integration of the design and construction team can enhance the use of sustainable construction practices.	<input type="checkbox"/> If sustainable construction issues are not well understood at the procurement stage, they will not be incorporated into the DB contract.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> DBOM contractors can realize economic returns for sustainable designs since they have an inherent bias toward minimizing operations and maintenance lifecycle costs.	<input type="checkbox"/> If sustainable construction issues are not well understood at the procurement stage, they will not be incorporated into the DBOM contract.

Table 4.26. Sustainable construction goals advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
22. Sustainable Construction Goals				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Other Issues

Issue 23: Construction Claims

The effect of each delivery method on exposing the agency to potential conflicts and claims is addressed under this issue.

Advantages/Disadvantages Form—Construction Claims

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> DBB has a well-understood legal precedent for construction claims.	<input type="checkbox"/> DBB historically has the highest occurrence of claims and disputes, which often occur in the areas of authority, responsibility and quality. <input type="checkbox"/> The low-bid environment can provide incentives for a constructor to file claims—particularly if there is any ambiguity in the plans.

Construction Manager At Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Having the constructor on the team early during design can lessen the likelihood for disputes and claims regarding designs.	<input type="checkbox"/> Since design and construction contracts are separate, the potential for disputes and claims regarding design still exist. <input type="checkbox"/> If multiple bid packages are not managed correctly, the coordination of these bid packages can result in claims.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> The single source for design and construction eliminates claims for design errors or omissions from the agency’s perspective.	<input type="checkbox"/> There is potential for claims with regard to scope definition if the form of the DB contract is not well understood.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> DBOM has similar advantages to DB and additionally eliminates claims regarding operating performance due to the integration of the operator.	<input type="checkbox"/> There is potential for claims with regard to scope definition if the form of the DBOM contract is not well understood.

Table 4.27. Construction claims advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
23. Construction Claims				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Issue 24: Adversarial Relationship

There are advantages and disadvantages to each project delivery method with regard to avoiding adversarial relationships on the project team. These advantages and disadvantages will vary depending on the nature of the project and the owner’s experience with the delivery methods.

Advantages/Disadvantages Form—Adversarial Relationship

Design-Bid-Build (DBB)	
Advantages	Disadvantages
<input type="checkbox"/> Roles and responsibilities in DBB contract are very well understood in the industry.	<input type="checkbox"/> DBB can create an adversarial relationship between the parties; primarily between the owner and construction contractor.

Construction Manager at Risk (CMR)	
Advantages	Disadvantages
<input type="checkbox"/> Inclusion of the construction manager in the design process can align team members and lessen adversarial relationships.	<input type="checkbox"/> Negotiation of GMP can create an adversarial situation if the process is not well understood.

Design-Build (DB)	
Advantages	Disadvantages
<input type="checkbox"/> Inclusion of the designer and constructor on the same team can lessen adversarial relationships.	<input type="checkbox"/> Due to the loss of control over the details of design, DB requires a high level of trust between the owner and design-builder. Without this trust, design-build can become adversarial.

Design-Build-Operate-Maintain (DBOM)	
Advantages	Disadvantages
<input type="checkbox"/> Inclusion of the designer, constructor, and maintenance contractor on the same team can lessen adversarial relationships.	<input type="checkbox"/> Similar to DB, a DBOM delivery requires a high level of trust to succeed.

Table 4.28. Adversarial relationship advantages/disadvantages summary.

Issue	DBB	CMR	DB	DBOM
24. Adversarial Relationship				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Comments _____

Step 5. Choose the Most Appropriate Project Delivery Method

Steps 1 through 4 of the selection process provide all the individual pieces of information needed to make a project delivery decision. The final step involves combining this information into a final comprehensive format that will aid in making the decision. Table 4.29 presents a form in which to summarize the advantages and disadvantages of each project delivery method with regard to each of the 24 issues. Following the table is an outline for use in documenting the final decision. Step 5 requires the following actions:

- **Review project goals.** Review the project goals documented in Step 2 to be certain that any project delivery method selection is in alignment with the goals.
- **Transfer individual issue summary ratings.** Transfer the 24 individual issue summary ratings (documented in the Issue Summary Table at the end of each issue analysis) to Table 4.29 to provide a complete picture of the analysis.
- **Review Table 4.29 to determine the dominant delivery method.** Upon completion of Table 4.29, a delivery method may emerge as dominant. A dominant delivery method will contain a large number of “most appropriate” ratings in areas that align with the project goals. A dominant method will also have few or no “least appropriate” ratings. Counting the ratings should be avoided. If needed, review any comments from the previous issue analysis to help with the delivery decision.

Note: If dominant method exists, make a delivery choice and move to Step 6.

- **Review “least appropriate” ratings.** Review any “least appropriate” ratings to determine whether any of the issues raised red flags or problems that would make a delivery method significantly less desirable.
- **Choose the delivery methods to study in Tier 2.** If a dominant method is not apparent, remove any inappropriate methods, document the decision as described in Step 6, and move to Tier 2 for a more detailed analysis.

Step 6. Document Results

The final step in the Tier 1 decision process is to document the results in a Project Delivery Decision Report. Whether one delivery method emerges as the dominant choice or none of the four delivery methods are eliminated from consideration in the process, documentation is a vital step. Documentation will assist in developing procurement and contracting strategies for the ultimate project delivery method. It will also serve to communicate the project delivery choice to interested stakeholders.

Table 4.29. Project delivery method advantage/disadvantage summary.

	DBB	CMR	DB	DBOM
Project-Level Issues Rating				
1. Project Size				
2. Cost				
3. Schedule				
4. Risk Management				
5. Risk Allocation				
6. LEED Certification				
Agency-Level Issues Rating				
7. Agency Experience				
8. Staffing Required				
9. Staff Capability				
10. Agency Goals and Objectives				
11. Agency Control of Project				
12. Third-Party Agreement				
Public Policy/Regulatory Issues Rating				
13. Competition				
14. DBE Impacts				
15. Labor Unions				
16. Federal/State/Local Laws				
17. FTA/EPA Regulations				
18. Stakeholder/Community Input				
Lifecycle Issues Rating				
19. Lifecycle Costs				
20. Maintainability				
21. Sustainable Design Goals				
22. Sustainable Construction Goals				
Other Issues Rating				
23. Construction Claims				
24. Adversarial Relationship				
Other				
Other				
Other				

Key: ● Most appropriate delivery method
 ● Appropriate delivery method
 ○ Least appropriate delivery method
 X Not applicable (discontinue evaluation of this method)

Project Goals and Pertinent Issue Comments

The six-step process forms the basis for the Project Delivery Decision Report. Steps 1 through 5 can be combined for a complete report. The advantage/disadvantage checklist and the related comments will be important components for documentation. An executive summary should be added to the beginning of the report to summarize the decision. Any pertinent data or research (e.g., schedule constraint calculations, delivery code research, and so forth) should be added as appendices. A suggested Project Delivery Decision Report outline is the following:

1. Executive Summary
2. Project Description
3. Project Goals

4. Delivery Methods Considered
5. Advantages and Disadvantages
6. Delivery Method Decision
7. Appendices

Conclusion

The Tier 1—Analytical Delivery Decision Approach provides transit agencies with a structured approach to choosing the most appropriate project delivery method for each individual project. At the end of Step 5, there may be a single, clear, and logical choice for a project delivery method. If this is the case, that delivery method should be selected and the decision documented in a Project Delivery Decision Report. If, at the end of this stage, a dominant choice has not emerged, the agency should document the results and move to the Tier 2 approach for a more detailed analysis of the remaining delivery methods.



CHAPTER 5

Tier 2—Weighted-Matrix Delivery Decision Approach

Introduction

The Tier 2—Weighted-Matrix Delivery Decision Approach provides a means for owners to further examine project delivery methods for an individual project when an obvious choice was not found in the Tier 1—Analytical Delivery Decision Approach. The Tier 2 approach involves prioritizing project objectives and selecting the delivery method that best aligns with these objectives. The Tier 2—Weighted-Matrix Delivery Decision Approach is founded upon successful delivery decision tools developed by academics and professionals over the past 20 years (Loulakis 2000, CII 2003, Skitmore and Marsden 1988).

Owners should complete a Tier 1 approach before conducting the Tier 2 approach. The Tier 1 approach provides owners with two key pieces of information. First, the completion of the Tier 1 approach requires owners to define their project goals in terms of cost, schedule, quality, maintainability, sustainability, and other options. These project goals are critical to application of the Tier 2 approach. Second, the Tier 1 approach provides a short list of available project delivery options. Only those project delivery methods that are feasible and have the best potential for successful application will pass through the Tier 1 filtering process. The filtering process involves examination of go/no-go issues and consideration of 24 pertinent issues involved in the project delivery decision. Knowledge of these pertinent issues is helpful in the Tier 2 approach.

Forms for the Tier 2 approach are provided in Appendix E, which is available on the TRB website at http://trb.org/news/blurb_detail.asp?id=10054.

The Tier 2 approach has three primary objectives:

- Present a structured framework to assist agencies in prioritizing their unique project goals and delivery selection issues;
- Assist owners in aligning their unique goals and issues with the most appropriate project delivery method; and
- Further document the project delivery decision in the Project Delivery Decision Report established in Tier 1.

The Tier 2 approach provides a framework for agencies to use in prioritizing their project goals and selecting the project delivery method that best aligns with these goals. Priorities for project goals and critical selection issues are unique to each project. Likewise, project delivery methods vary in their ability to achieve these goals and their suitability with regard to various issues. The Tier 2 approach will align these two facets of the delivery decision.

At the completion of Tier 2, there is still a possibility that an agency will not have a single, clear, and logical choice for a project delivery method. If this is the case, the agency is advised to move to the Tier 3 approach with the short list of delivery methods emerging from completion of the

Tier 2 approach and make the final decision based upon a detailed risk analysis of the issues involved with each delivery method.

The Tier 2 approach is composed of five distinct steps listed below and shown in Figure 5.1.

- Step 1. Define Selection Factors
- Step 2. Weight Selection Factors
- Step 3. Score Project Delivery Methods
- Step 4. Choose Most Appropriate Project Delivery Method
- Step 5. Document Results

Step 1 of the Tier 2 process begins by defining a concise set of selection factors. These selection factors consist of the project goals and any of the 24 pertinent issues examined in Tier 1 that were deemed critical (see Chapter 4 for Tier 1). The Tier 1 approach asks owners to establish their project goals at the very beginning of the process. The first step in Tier 2 is for owners to develop a concise set of selection factors by combining their project goals with the most relevant of the 24 pertinent issues examined in Tier 1. These selection factors will be used throughout the Tier 2 approach.

In Step 2, owners rank and then weight selection factors. Some selection factors may overlap with others, in which case they can be combined. Other selection factors may stand alone for analysis. Completion of Step 2 results in a list of up to seven selection factors for further analysis.

Step 3 of the Tier 2 approach requires owners to score each delivery method in terms of the selection factors. A further examination of the advantages and disadvantages for each delivery method will form the basis for these scores. Since the scores will be subjective, the owners will need to be diligent in documenting the rationale for the scores.

Step 4 involves a determination of the most appropriate delivery method through the completion of a weighted-decision matrix (see the weighted-matrix template in Table 5.3). Owners will make the determination by multiplying the selection factor weights by the project delivery scores and then summing the values for each delivery method. The highest score will indicate the

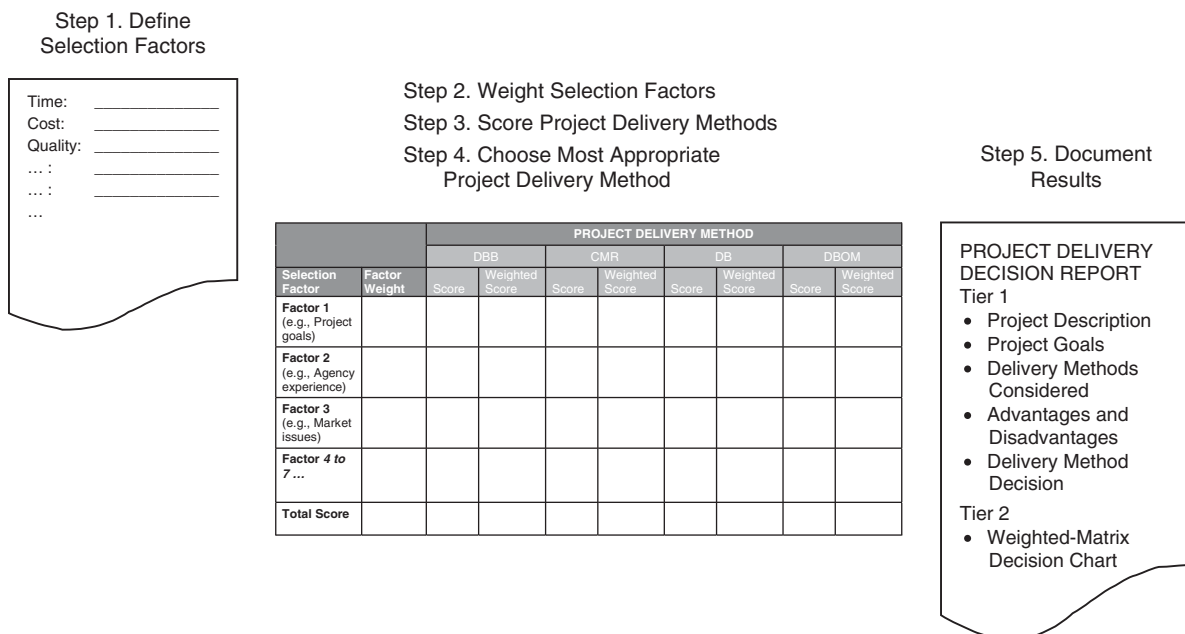


Figure 5.1. Tier 2 approach overview.

best choice. However, since the scores will be subjective, owners are encouraged to review the totals to determine whether the values are logical and defensible.

The objective of Step 5 is to supplement the Project Delivery Decision Report developed in Tier 1. The Tier 1 report will provide a project description, project goals, delivery methods considered, advantages and disadvantages, delivery method decision, and any relevant appendices. The Tier 2 documentation will add to this documentation of the weighted-matrix decision to supplement the archival record of the project delivery decision. The Project Delivery Decision Report will serve to communicate the decision to interested stakeholders and to justify the decision if issues arise years later as the project is completed.

The five steps of the Tier 2 approach are discussed in more detail below. In this report, to better illustrate how the Tier 2 approach works, the selection of a delivery method for an example project is followed through the first three steps of the Tier 2 analysis. Following the description of Steps 1, 2, and 3 in the Tier 2 approach is an illustration of how each step was handled in the delivery selection process for the example project.

Step 1. Define Selection Factors

As stated in Step 1 of Tier 1, understanding and communicating a concise set of project goals is perhaps the most important element in selecting an appropriate project delivery method. The definition of project goals is a key success factor not only in the project delivery decision, but also in the development of procurement documents and the administration of a project. It is the project performance goals (e.g., time, cost, quality, maintainability, and sustainability) that typically drive the project delivery decision.

The first step in Tier 2 requires owners to combine the project goals and pertinent issues into a set of selection factors for use in a weighted-decision matrix. This step requires a review and filtering of the project goals and pertinent issues for use as selection factors. Figure 5.2 depicts this process.

To create the goal-based selection factors, owners should review the project goals that were established in Tier 1. The Tier 1 review of the delivery method advantages and disadvantages may have revealed overlaps or gaps in the originally established project goals. While the original proj-

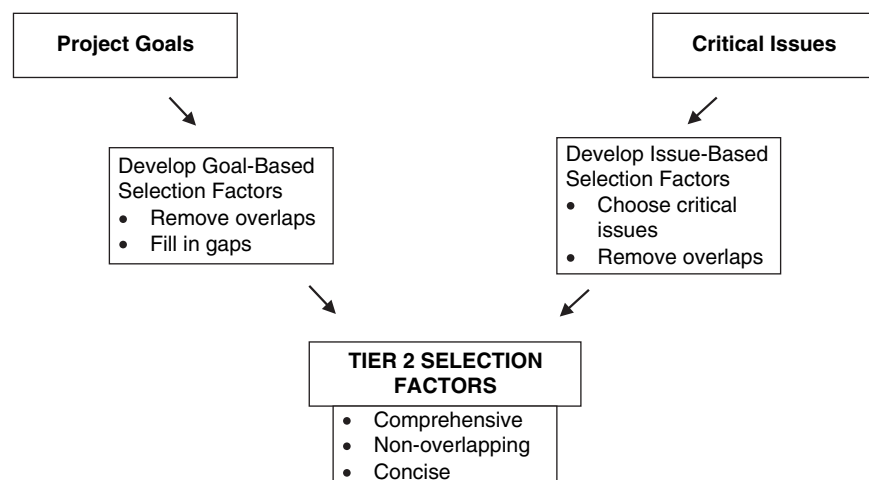


Figure 5.2. Tier 2 selection factor development.

ect goals should not change, these overlaps and gaps will need to be removed for the development of selection factors. Step 1 in the Tier 2 approach allows and encourages editing of these goals as they are rewritten into selection factors. In developing selection factors from the project goals, owners should consider the following questions:

- Are there significant overlaps in the project goal statements that can be revised to make them more independent?
- Are there goal statements missing that are needed to define the ultimate project success?
- Can any of the goals be stated more concisely?

The Tier 1 approach provides an opportunity to review 24 pertinent project delivery issues. However, in the Tier 1 approach all of the issues are treated as equally important. Upon reviewing the issues, owners will certainly find that some issues are more important than others. A small number of issues are likely to be important to the final project delivery decision.

The next task in Step 1 is to select up to 7 of the 24 pertinent project delivery issues to examine and develop into selection factors. The owner should select the pertinent issues according to the following:

- The pertinent issues should be independent of the project goals,
- The pertinent issues should be independent of each other, and
- No more than seven pertinent issues should be chosen.

The final task of Step 1 is to consolidate the goals-based and issues-based selection factors into one comprehensive list. The next step in the Tier 2 process involves a ranking of the goals and critical issues; therefore, one combined list is required.

Delivery Selection Process for the Example Project—Step 1. The selection factors for the example project were determined to be the following:

- Project complete by November 1, 20XX.
- Cost not to exceed \$1.5 billion.
- Environment enhanced through less traffic congestion and pollution.
- Staffing requirements minimized during design and construction.

This list of selection factors includes project goals relating to time, cost, and sustainability and a pertinent issue regarding agency staffing. While other issues, such as technical quality, maintainability, third-party agreements, and so forth undoubtedly exist for the project, the list of selection factors includes the goals and issues by which the success of the project will be primarily measured at its completion.

Step 2. Weight Selection Factors

The Tier 2 approach is based on the premise that owners can establish a unique hierarchy of selection factors. In other words, success will be defined differently for each project and the criteria for success can be described by a few key selection factors. The objective of Step 2 is to weight the list of selection factors.

Step 2 involves first ranking and then weighting the selection factors. There are numerous methods that can be used to achieve a weighted ranking of the factors. The most straightforward method is developing a ranking and weighting through discussion among project decision makers. The decision will by nature be somewhat subjective, so a diligently documented group decision is preferable.

To achieve the weighted ranking, owners should do the following:

- Rank the selection factors in order from highest to lowest with regard to their influence on project success.
- Include a minimum of four and a maximum of seven factors.
 - Remove factors not ranked in the top seven.
- Using 100 total points, weight the factors according to their influence on project success.
 - Avoid equal weighting of factors.
 - Remove any factors with a value of less than 5 of the 100 points and redistribute points.

These three steps describe a simple method for achieving a weighted ranking of the selection factors. Decision sciences provide more precise methods for achieving weighted rankings and developing a consensus. Appendix F (available on the TRB website at http://trb.org/news/blurb_detail.asp?id=10054) provides descriptions of the following methods to achieve more precise weighted rankings:

- The Delphi Method,
- Rank Order Centroid,
- The Ratio Method, and
- Pairwise Comparison.

The result of Step 2 will be a weighted ranking of up to seven selection factors. The weightings should total 100 points. Equal factor weightings are not recommended because distinguishing the importance between factors (goals and pertinent issues) is necessary for the decision process. Additionally, no single factor should have a point value of less than five because a point value that low will not influence the final decision and may in fact make the selection more difficult.

Steps 3, 4, and 5 involve combining the weighted ranking of the selection factors with a scoring of the project delivery methods to arrive at the selection of the most appropriate delivery method.

Delivery Selection for the Example Project—Step 2. Table 5.1 shows how weighted ranking worked in the example project. In Table 5.1, selection factors for the example project have been weighted to reflect their influence on the success of the example project’s delivery. These weightings are project dependent and should be agreed upon by key owner team members.

Step 3. Score Project Delivery Methods

The third step involves a scoring of the alternative delivery methods from the Tier 1 analysis. Each of these delivery methods will have a bearing or influence on the selection factors, which stem from the project goals and pertinent issues. The key decision makers must translate this influence into a score to arrive at a decision. To achieve the total scores for each delivery method, owners do the following:

Table 5.1. Weighted ranking of selection factors for the example project.

Weight	Selection Factor
50	Project complete by November 1, 20XX.
25	Cost not to exceed \$1.5 billion.
15	Environment enhanced through less traffic congestion and pollution.
10	Staffing requirements minimized during design and construction.
100	Total

- Using the scale given in Table 5.2, assign a score to each delivery method that represents its influence or bearing on each selection factor. Score all delivery methods for each factor before moving to the next factor.
- Repeat the previous step for each selection factor.
- When all of the delivery methods have been scored, multiply each delivery method's factor weight by its score to achieve a weighted score for each delivery method.
- Sum all of the weighted scores to arrive at a total score for each delivery method.

Table 5.2 provides a scale for scoring each delivery method's bearing on each selection factor. The scores range from 1 to 10 so that when they are multiplied by the factor weight, the total score will range from 0 to 1,000. The scores are subjective, so a detailed definition for each numerical score is provided adjacent to the score in Table 5.2. When scoring the delivery methods, owners should discuss the advantages and disadvantages of each delivery method (see Chapter 3 and Step 4 of Tier 1). The alignment of these advantages and disadvantages with the selection factors forms the basis for the scoring. In assigning the scores, the owner should work in a team to come to a decision by consensus. The reasons for each individual score should also be carefully documented. Consideration should also be given to the relative scores for each delivery method to ensure consistency.

Like the development of factor weights, scoring project delivery methods can be done most simply through a group discussion among key decision makers from the owner's team. If a more precise scoring is desired, one of the decision techniques described in Appendix F can be used.

Table 5.3 provides a weighted decision matrix template. The matrix can contain up to four delivery methods, depending upon the results of Tier 1. The matrix can also contain up to seven selection factors for each project. The result of Step 3 will be a scored ranking of the delivery methods in question. The delivery method with the highest total score will be the most appropriate method for the given project.

The next steps involve documenting the individual scores, making a decision, and creating a Project Delivery Selection Report.

Delivery Selection for the Example Project—Step 3. Table 5.4 shows how an owner might score the project delivery methods for the example project. Note that only the CMR and DB project delivery methods made it through the Tier 1 filter for further consideration in Tier 2. Also note that the scores are project dependent and will certainly change from project to project.

Table 5.2. Project delivery scoring scale (adapted from Saaty 1990).

Score	Definition
10	The evidence that the delivery method positively aligns with the project objective or issue is of the highest possible order of affirmation.
8	The delivery method strongly aligns with the objective or issue and is demonstrated in practice. There is a slight risk that the objective or issue may not be beneficial.
6	Experience and judgment point to the delivery method strongly aligning with the objective or issue. There is a mild risk that the objective may not be beneficial.
4	Experience and judgment point slightly to the delivery method aligning with the objective or issue. There is a strong risk that the objective will be negatively affected.
2	There is little benefit to applying the delivery method for this goal or objective. There is a strong likelihood that the object will not be achieved.
9,7,5,3,1	Intermediate values between two adjacent judgments.

Table 5.3. Weighted-matrix template.

		Project Delivery Method							
		DBB		CMR		DB		DBOM	
Selection Factor	Factor Weight	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score	Score	Weighted Score
Factor 1 (e.g., Project Goals)									
Factor 2 (e.g., Agency experience)									
Factor 3 (e.g., Market issues)									
Factors 4 to 7 ...									
Total Score									

Explanations of the scores for the project delivery methods for the example project are the following:

- **Project completion factor.** The project completion factor relates to a project goal. In this case, the project has a fixed end date of November 1, 20XX. The owner believes that CMR delivery can achieve the completion date. The owner also believes that CMR will require the use of multiple bid packages to achieve the schedule, which adds a risk for meeting the schedule date, so CMR = 6 (in this case). DB delivery provides for a single entity to coordinate design and construction. DB also allows for an owner to specify a fixed end date in the procurement documents and the contract. According to what has been demonstrated in practice, the owner is confident that the end date can be achieved through a DB delivery, so DB = 8 (in this case).
- **Cost containment factor.** The cost containment factor relates to a project goal. The project has a maximum budget of \$1.5 billion. Practice has shown that with DB a fixed price can be set early in the project development process. It has also been demonstrated that DB provides the lowest average cost growth of the two methods in question, so DB = 8 (in this case). CMR also provides the ability to meet a fixed price, but the owner is not as confident with the experience using a GMP contract structure. The owner also feels that there is more risk with CMR of not achieving the schedule than with DB, so CMR = 6 (in this case).

Table 5.4. Weighted matrix for example project.

		Project Delivery Method			
		CMR		DB	
Selection Factors	Factor Weight	Score	Weighted Score	Score	Weighted Score
Project complete by November 1, 20XX	50	6	300	8	400
Cost not to exceed \$1.5 billion	25	6	150	8	200
Environment enhanced through less traffic congestion and pollution	15	10	150	6	90
Staffing requirements minimized during design and construction	10	8	80	6	60
Total Score	100		680		750

- **Environmental enhancement factor.** This factor relates to a project goal. The owner wants the project to enhance the environment through less traffic congestion and pollution. In this case, the owner has met with designers who can help define sustainability goals that can be achieved through their independent designs if they are hired directly by the owner. The CMR delivery method will provide for a direct contract between the owner and the designer to ensure that the goals are achieved, so $CMR = 10$ (in this case). While the owner can develop DB performance criteria related to sustainability, the owner is not as confident that it can accurately articulate its goals in the performance criteria, and it believes that there is a risk that the goals will not be fully achieved, so $DB = 6$ (in this case).
- **Staffing requirements factor.** The staffing requirements factor relates to a pertinent issue examined in Tier 1. The owner does not have a large staff and wants to minimize staffing requirements during design and construction. The CMR option will allow the owner to supplement its staff during both design and construction, either with the designer or with the CMR. The owner is confident that qualified professionals exist to meet its staffing needs, but is slightly concerned about exactly how the working relationship between the CMR and the owner will be executed, so $CMR = 8$ (in this case). The DB option will require the owner to mass its resources (or build up for a short time) during the procurement and design review process. The owner believes that it can supplement its staff with a general engineering consultant, but the owner is not confident that the DB option will be as effective as the CMR option, so $DB = 6$ (in this case).

Step 4. Choose the Most Appropriate Project Delivery Method

At this point, choosing the appropriate delivery method is simply a matter of reviewing the total scores and making the project delivery decision. Since the factor weighting and the scores are subjective, the owner should review the totals and confirm that they are logical and defensible. If, upon further discussion, a factor weight or project delivery score appears to be incorrect or to overly influence the selection, it is acceptable to make changes and create a new total project score. The key is to document the reasons for each change. If the owner is not confident about a particular weight or score, the owner can conduct more research about a particular delivery method and revisit the scoring after gathering more information. If the owner is not confident about the scoring method, the owner may choose to use one of the more rigorous scoring methods presented in Appendix F, available on the TRB website at http://trb.org/news/blurp_detail.asp?id=10054.

If, at this point, a “most appropriate” delivery method has not emerged, the owner should document the results of the Tier 2 analysis (see Step 5) and move to the Tier 3 approach (see Chapter 6).

Step 5. Document Results

As in Tier 1, documentation of the delivery decision is a key part of the process. Whether one delivery method clearly achieves the highest score or no dominant choice appears, documentation is a vital step. Documentation will assist in developing procurement and contracting strategies for the ultimate project delivery method. Documentation will also serve to communicate the project delivery choice to interested stakeholders.

Documentation of Tier 2 involves supplementing the Project Delivery Decision Report developed in Tier 1. The Project Delivery Decision Report should contain the weighted matrix and a detailed documentation of the reasoning on which criterion weights and project delivery scores are based.

Conclusion

The Tier 2—Weighted-Matrix Delivery Decision Approach extends the Tier 1 approach by providing an examination of how project delivery methods align with project goals and pertinent issues as these are consolidated into selection factors. The weighted ranking of project selection factors requires decision makers to define their priorities and more closely examine the attributes of the delivery methods remaining after the Tier 1 analysis. At the end of Step 4, there may be a single, clear, and logical choice for a project delivery method and the choice can be documented in the Project Delivery Decision Report. If a dominant choice does not appear, the agency should document the results and move to the Tier 3 approach, which focuses on how delivery methods relate to project risks.

Tier 3—Optimal Risk-Based Approach

Introduction

The Tier 3—Optimal Risk-based Approach leverages risk-based cost-estimating methods that have emerged in transit and highway agencies in the past few years (Touran, Bolster, and Thayer 1994; Parsons, Touran, and Golder 2004). Tier 1 and Tier 2 approaches should be completed before the Tier 3 approach is introduced. Most of the time, it will be possible to make the delivery method decision by completing Tiers 1 and 2. Even if a clear choice cannot be established after going through the first two tiers, at least the completion of the first two tiers will yield a short list of viable choices. It is expected that by the time decision-makers get to Tier 3, they are looking at only two delivery method candidates. It is important that there are only two delivery method candidates because the effort involved in using Tier 3 (especially the quantitative approach) is considerably larger than effort involved in either Tier 1 or Tier 2.

The Tier 3 approach consists of two phases. The first phase involves a qualitative analysis: developing a risk-allocation matrix that clearly portrays an owner's risk under competing delivery methods. Through review of these risks, the owner (in this context, mostly transit agencies) will have an opportunity to decide whether a specific delivery method is more appropriate than others. If the qualitative analysis does not provide a definitive answer to the delivery selection question, the second phase—a quantitative analysis—should be considered. The quantitative approach emphasizes the effect of the project delivery method on project cost and schedule. The two-phase process (depicted in Figure 6.1) should be repeated for each project delivery method that survives the Tier 2 process.

Due to cost escalation on large transit projects, since 2002, the FTA has required that each “New Starts” project undergo a formal risk-based cost estimate. Specific requirements for these risk assessments are provided in FTA guidance documents such as “PMO Operating Procedures No. 40, Risk Management Products and Procedures” (2007). A risk-based cost estimate generates a range of possible project costs rather than a single point estimate, as shown in Figure 6.2. This distribution represents the combined effect of various risks that affect project cost. Using this distribution, the project owner would be able to estimate the probability of finishing the project within a specified budget. Alternatively, the owner can establish a sufficient contingency budget to keep the probability of cost overrun or schedule delay below a specified threshold.

The same modeling method (and much of the same data) that is used to generate the cost and schedule risk analysis can be used to make more informed decisions and allocate risks appropriately, in essence, optimizing the project delivery and contracting decisions.

One of the major findings of the structured interviews (conducted with transit agencies as part of this research effort) was the apparent effect of a rigorous risk analysis on project success. It

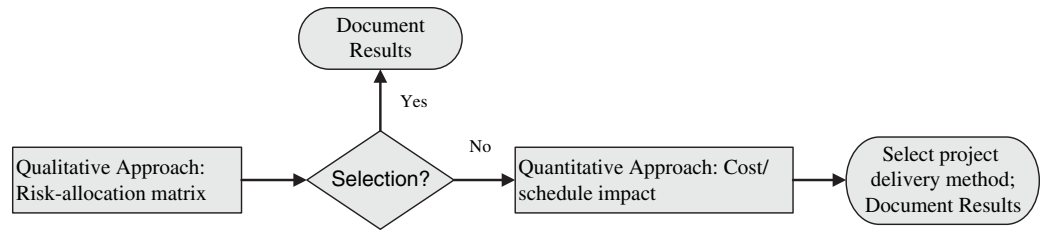


Figure 6.1. Overview of the risk-based qualitative and quantitative approaches.

was found that projects in which more attention was paid to risk analysis fared better than other projects in terms of meeting budget and schedule goals.

The following sections describe the qualitative and quantitative phases of the Tier 3 approach in more detail.

Qualitative Analysis

Figure 6.3 shows the risk-based approach superimposed on the project lifecycle. The most likely times to decide on the project delivery method are at the end of the Conceptual Design Phase or during the Preliminary Engineering Phase. If a project goes into the Final Design Phase without a decision on a project delivery method, the agency will lose the opportunity to effectively use alternative delivery methods and will be limited to the traditional DBB approach. At the end of the Conceptual Design Phase, the agency usually has not done a detailed risk analysis. If an agency is unable to select a project delivery method upon completion of the Tier 1 and Tier 2 approaches, it would need to conduct a preliminary risk analysis in order to make an informed choice of project delivery method.

The result of this preliminary risk analysis is a risk-allocation matrix. The risk-allocation matrix has become an industry standard for legal teams when authoring alternative contracts for large infrastructure projects. For example, a risk-allocation matrix was a first step in creating the contract for the T-REX multimodal DB project in Colorado. Table G-1 in Appendix G (available on the TRB website at http://trb.org/news/blurb_detail.asp?id=10054) presents a generic risk-allocation matrix that can be used for accomplishing the qualitative analysis. It should be noted that the matrix of Table G-1 will most likely consist of only two (and in rare cases maybe three) delivery methods because the completion of the Tier 1 and Tier 2 approaches should

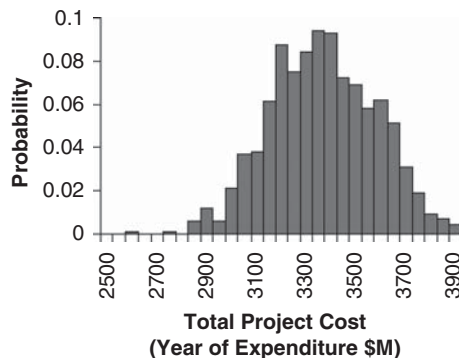


Figure 6.2. Distribution of project costs.

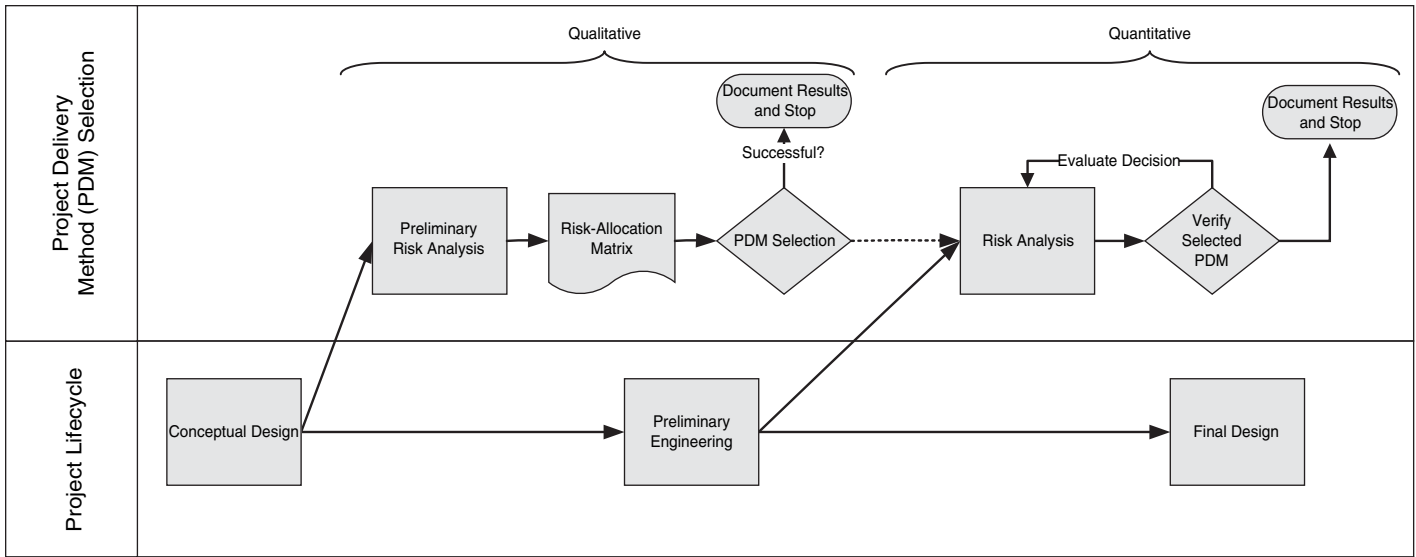


Figure 6.3. Risk-based approach superimposed on project lifecycle.

reduce the number of possible alternatives. Table 6.1 shows a risk-allocation matrix for a hypothetical project. A description of the development of this risk-allocation matrix is given below.

Risk factors (shown the first column in Table 6.1 and typically arranged in a matrix according to either their impact [rank] or chronology) are major events or conditions that can affect a project in a negative way (the events that can affect the project in a positive way are called “opportunities,” and traditionally there are far fewer opportunities than risks). Only significant risks should be considered because identifying and measuring all project risks would be a major effort. Under each project delivery method listed in the matrix, a main responsible party should be identified for each risk factor. For example, in the matrix shown in Table 6.1, the party responsible for design defects in a DBB contract is the owner, whereas in the DB contract, the responsible party is the constructor.

Risk factors are rated, always from the perspective of the owner agency, according to the effect of a particular project delivery method on that risk factor. In the hypothetical case shown in Table 6.1, from the agency perspective, DBB is seen as having a favorable effect on the risk factor of “permits/approvals.” The agency thinks that it is the best party to obtain permits/approvals and that it can most effectively do this using a DBB approach. Therefore, the risk factor of

Table 6.1. Risk-allocation matrix for a hypothetical project.

Risk Factor	DBB		DB	
	Responsible Party	Rating	Responsible Party	Rating
Permits/Approval	Owner	+	Constructor/Owner	-
Different Site Conditions	Owner	0	Constructor/Owner	+
Design Defects	Owner	-	Constructor	+
Quality Assurance/ Quality Control	Constructor/Owner	0	Constructor	+
Exchange Rate Risk	Owner	-	Owner	-
Other Risk Factors				

permits/approvals has received a rating of **+**. The same risk factor, under a DB delivery method, is seen as unfavorable from the agency’s point of view because the agency thinks that the DB constructor is not the best party to obtain various permits and approvals (such as environmental permits). Therefore, a rating of **–** is assigned. Another risk factor in the hypothetical example, “design defects,” has a rating of **–** under the DBB arrangement because in this delivery method the agency is responsible for the accuracy of design. A DB approach, on the other hand, is rated **+** because it transfers this risk to the constructor.

If the choice of a project delivery method has no effect on a particular risk factor, then a rating of **0** will be assigned. In rating each risk factor, one can refer to the contents of Chapter 3 of this guide, where the advantages and disadvantages of various project delivery methods in relation to 24 pertinent issues are documented.

No attempt is made at this stage of the Tier 3 analysis to quantify the impact of these risk factors (in terms of \$ value or project delay). After the matrix is developed and the risk factors rated, the evaluation team can review the outcome and see if any project delivery method seems superior in terms of its capacity in dealing with these risk factors. For example, a review of the matrix in Table 6.1 may suggest that DB is the better choice for the owner agency because of the number of favorable ratings that it obtained.

Preparation of the risk-allocation matrix and rating the risk factors can be accomplished in a reasonable amount of time. If the outcome suggests a “most appropriate” project delivery method, then the decision is finalized and the results, along with justification, are documented. If, after going through the process, the choice is still not clear, then the Tier 3 process should continue on to the second phase—the quantitative analysis.

Quantitative Analysis

The quantitative approach should be attempted only if the qualitative approach does not result in a clear delivery method choice for a project. As shown in Figure 6.3, it is suggested that the Tier 3 quantitative analysis occur at the conclusion of the preliminary engineering phase, after the agency has conducted the FTA-mandated probabilistic risk analysis of project cost and schedule. The risk analysis is a major undertaking that requires hundreds of person-hours over the course of several weeks. Also, the outcome of the risk analysis can inform the project delivery method selection process (see Figure 6.4). The quantitative phase of Tier 3 would then be contingent on the availability of the complete risk analysis. If this risk analysis is not a requirement (for example in projects that do not apply for federal funding), then it is suggested that the proj-

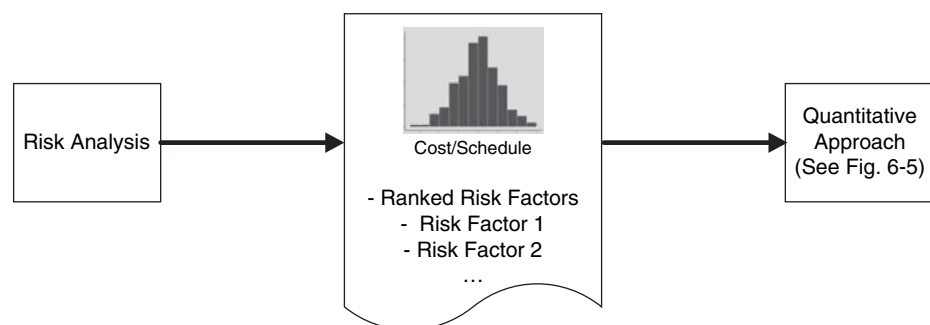


Figure 6.4. Risk analysis outcome as an input to project delivery method selection.

ect delivery method selection decision be made without this phase as the cost of this phase could be prohibitive.

The outcome of the probabilistic risk analysis required by the FTA consists of a distribution (range of possible values) for project cost and duration. Also, a list of the most important risk factors, ranked according to their impact on budget or schedule, is provided as part of the risk mitigation report. Usually, the number of these ranked risks is limited (e.g., in several risk assessments conducted by the project management oversight (PMO) consultants on behalf of the FTA, the list of significant risk factors included 10 to 15 risk factors). The FTA analysis follows the logic of Pareto's law (also known as the 80-20 rule and the law of the vital few), which states that for many events, 80% of the effects come from 20% of the causes. In the context of project risks, relatively few risks are responsible for most of the project cost or schedule overruns. The project cost distribution and the list of ranked risks serve as inputs to the process of selecting the best project delivery method. For each ranked risk, a distribution of risk costs is usually estimated. The highest ranked risks are those with large expected values and large ranges (an indication of high variability in the risk factor).

The proposed process, called the quantitative approach in this work, will involve estimating the effect of each major risk factor on the agency's budget, given a specific delivery method. The process starts by reviewing all the risk factors and selecting the risk factors whose value will be affected by the choice of project delivery method. Only the risk factors that are sensitive to the project delivery method will be selected for further analysis. For each of these risk factors, the range of cost will be estimated under a given project delivery method. This estimation can best be accomplished by some of the same experts involved in the risk analysis. Figure 6.5 provides an example of a hypothetical project in which four major risk factors have been identified as the risk factors that are affected by the choice of project delivery method and the two remaining candidates for delivery method are DBB and DB. The risk factors are the following: *permits*, *utility relocation*, *differing site conditions (DSC)*, and *third-party issues*. The cost of each risk is estimated using a triangular distribution, although many other distributions can be used depending on the nature of the risk factor.⁴ The sum of these risk costs will give the distribution for the total risk costs. There are statistical methods that can be used to calculate this sum with relative ease. Comparison of distributions of these total risk costs will give the owner agency a valuable tool for assessing the effect of project delivery method on project cost. A similar approach can be used to assess the effect of risks on project schedule. If the purpose of the risk analysis is to examine the effect of delivery method on project duration, all the distributions depicted in Figure 6.5 would have durations on the X-axis and the total effect will be the total impact on project schedule instead of on project cost.

The quantitative analysis is a powerful tool for comparing competing project delivery methods. It focuses on those differences between project delivery methods that affect cost and schedule and provides a consistent way of evaluating each project delivery method vis-à-vis major risk factors affecting the project. This analysis allows the decision-maker to document the reasons for the selection of a specific project delivery method. The drawback of this analysis is its dependency on the availability of expensive risk analysis results and the higher skill level required for pricing out each risk under various project delivery methods. However, the choice of the project delivery method is a natural outcome of a risk analysis exercise because one of the most important benefits of any risk analysis is risk allocation/mitigation. A properly selected project delivery method is an effective risk mitigation instrument that can help keep project costs low and minimize project delays.

⁴In a triangular distribution, the range of possible values is estimated with a lower bound (optimistic), an upper bound (pessimistic), and a most-likely value. The triangular distribution is commonly used in probabilistic risk analysis because of its simplicity.

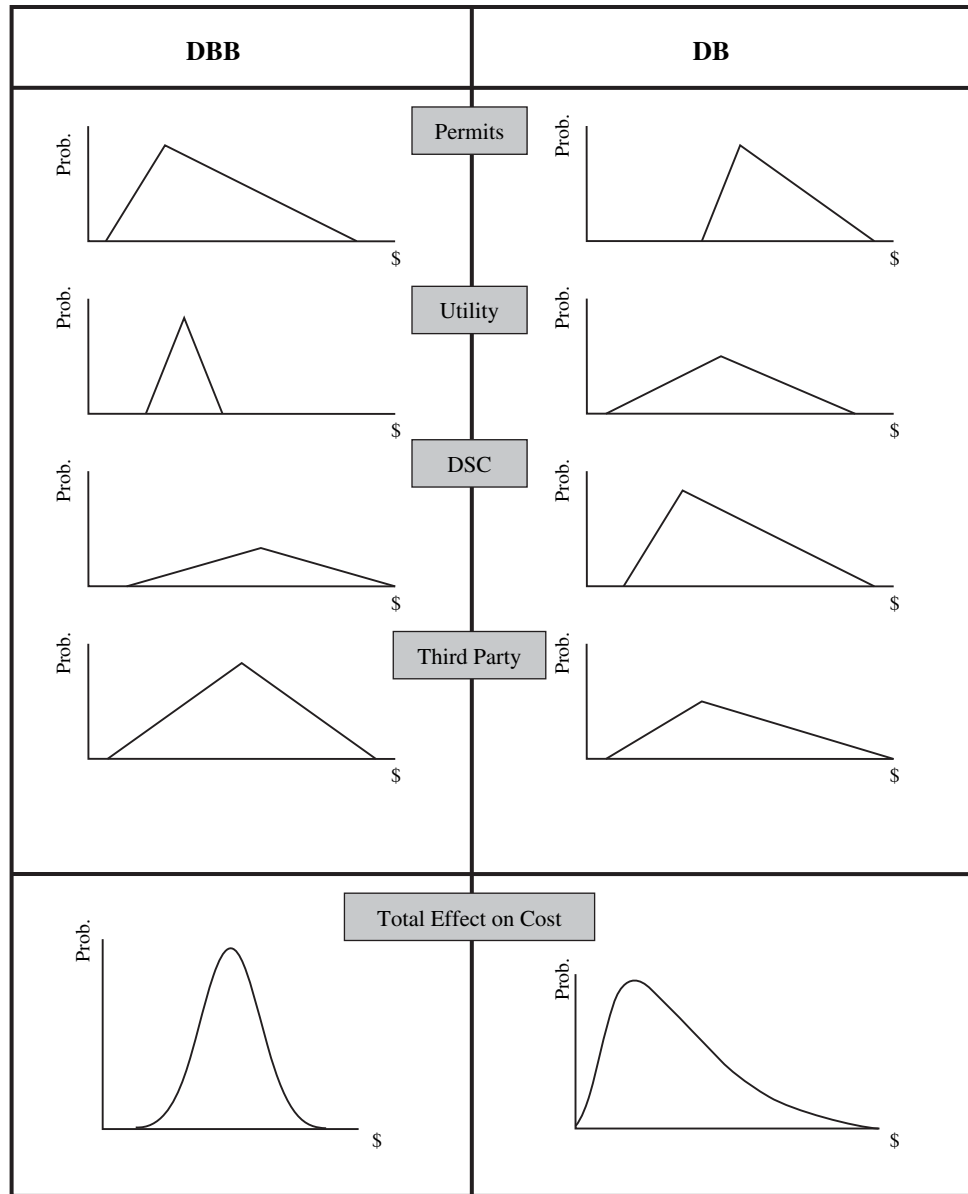


Figure 6.5. Overview of the quantitative analysis.

Conclusion

The Tier 3 approach may be needed in cases where the Tier 1 and Tier 2 approaches cannot provide a clear best choice for the project delivery method. In such a case, the Tier 3 provides a two-phased approach: first, a qualitative analysis and then, if necessary, a quantitative one. Both analyses are based on a risk-allocation exercise that will determine major risks to the agency under various project delivery methods. In the qualitative approach, the decision-makers carefully examine each risk factor and deliberate the anticipated effect of each risk factor on project cost and schedule. This critical review can help the agency decide on the most appropriate delivery method. If the qualitative analysis does not yield a final choice of delivery method, the agency can then proceed with the quantitative analysis. In this analysis, the cost and schedule effect of each risk factor is estimated within an appropriate range, summed up, and used in comparing the total effect of risks under competing delivery methods. The agency can then select the delivery method that results in the most favorable outcome considering both cost and schedule.

Summary

This guidebook was prepared with the objective of providing a systematic and logical approach for selecting the most appropriate delivery method for a transit project. Furthermore, this guidebook aims to help the user in documenting the process of decision-making in a Project Delivery Decision Report. It is recommended that transit agencies use industry professionals from outside the agency to facilitate the implementation of this methodology. These professionals should have a thorough understanding of and experience with the type of project the agency is evaluating, the various project delivery methods the agency is considering, and the potential risks associated with the type of project and various project delivery methods under consideration. The use of such professionals will ensure that the appropriate expertise and experience is incorporated into the process. Facilitation of the process by outside professionals will also foster an objective selection of the most appropriate project delivery method, and minimize the likelihood of a predetermined outcome.

The delivery methods considered in this guidebook are the traditional design-bid-build (DBB), CM-at-risk (CMR) or CM/GC, design-build (DB), and design-build-operate-maintain (DBOM). Until recently, the traditional DBB approach was transit agencies' most common choice of the project delivery method mainly because of legal limitations and because agencies had experience with this delivery method. Legal limitations on using other delivery methods have mostly been removed, and this has provided more flexibility in the choice of project delivery method.

Transit agencies have different motivations in selecting a delivery method other than DBB. The research team found that no single project delivery method was superior to all others and that transit agencies need to carefully analyze the characteristics of each project to find the project delivery method most suitable for meeting a project's requirements. The most common reasons for choosing an alternative project delivery method given by project directors interviewed for this research were the following:

1. Reducing/compressing/accelerating the project delivery period,
2. Encouraging innovation,
3. Establishing a budget and involving a contractor early in the process, and
4. Meeting flexibility needs during the construction phase.

Transit agencies should carefully study the risks, costs, and benefits associated with each project delivery method in relation to a particular project under consideration and select the project delivery method that best suits the legal, technical, and business environment in which the project must be built. This guidebook strives to facilitate this process by providing a three-tiered delivery selection system that covers all these factors. In this system, the user works through the three tiers sequentially and narrows down the viable delivery methods through a process of eliminating the inferior choices.

In the Tier 1 approach, users evaluate the viability of each delivery method against 24 pertinent issues that can be of vital importance to a project's success in achieving its goals and objectives. Among the 24 pertinent issues that affect the project delivery decision, there are 4 issues that may render one or more delivery methods inappropriate. These four issues are project schedule constraints; federal, state, and local laws; third-party agreements; and labor union agreements. The transit agency needs to review project delivery methods in relation to these four issues to determine whether any of the delivery methods should be eliminated. In other words, the agency should make a go/no-go decision on each delivery method based on how these four pertinent issues are affected by the delivery method.

Following the go/no-go decision, the user examines the remaining project delivery choices against the larger list of pertinent issues and rates each delivery method based on its advantages and disadvantages in relation to each pertinent issue. The summary of these ratings is compiled in a table and analyzed to determine whether a decision on a delivery method can be made based on the ratings. If a clear choice emerges at this point, a Project Delivery Decision Report can be generated that describes the reasons for the choice of delivery method.

If more than one delivery method remains viable after completing the Tier 1 approach, the user should move on to the Tier 2 approach. In Tier 2, a select subset of goals and pertinent issues are identified as "selection factors" that are of profound importance to the transit agency. Each selection factor is weighted according to instructions provided in this guide (see Chapter 5), and an overall score is computed for each delivery method. Again, a report documenting the decision-making process can be generated.

If more than one delivery method remains viable after completion of the Tier 1 and Tier 2 approaches, the user moves on to the Tier 3 approach. In Tier 3, the user reviews and identifies project risks and prepares a risk-allocation matrix that provides a clear comparison among the remaining delivery methods in terms of risks that are inherent to them. This matrix should help the user select the delivery method that results in a more favorable risk profile. Project risks can also be quantified through well-established risk analysis techniques, and a decision regarding the most appropriate delivery method can be reached based on the costs of the risks associated with each delivery method. However, the quantitative approach requires significant effort and depends on the willingness of the owner agency to embark on this analysis and the availability of a risk assessment report for input into this process.

This guidebook was tested by several transit project directors. The users found the process easy to follow and informative, and their overall assessment was very positive. Their comments and feedback were carefully reviewed and incorporated in the current guidebook. The guidebook in its current form is a valuable tool for transit agencies, especially those with limited experience with alternative project delivery methods.

References

The papers, books, reports, and websites referred to in the guidebook and its appendices are listed here. An annotated bibliography is also developed in this research which can be found in *TCRP Web-Only Document 41*, available at http://trb.org/news/blurb_detail.asp?id=9886.

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Definitions

Agency CM: Agency CM is a professional service where the CM acts as the owner's agent in managing the construction project. Its role is consultative and the CM is usually not at risk for the cost and schedule of building the project.

Analytical Delivery Decision Approach: It is a method of project delivery selection that examines the advantages and disadvantages of various project delivery methods to arrive at an appropriate method for an individual project. In this guidebook, this method is Tier 1 of the proposed Project Delivery Selection System.

Best-value Procurement System: A procurement process where price and other key factors are considered in the evaluation and selection process to minimize impacts and enhance the long-term performance and value of construction.

Construction Manager-at-Risk (CMR) or CM/GC: In this guidebook, CMR and CM/GC are equivalent terms. The owner holds two separate contracts with the construction manager (sometimes referred to as *General Contractor*) and the designer of the project. The CMR is chosen based on criteria other than just the lowest construction cost, such as qualifications and past performance. In this delivery method, the CMR is held to a *guaranteed maximum price* (GMP). The CMR typically provides constructability, cost, schedule, and value engineering input during the project design phase.

Constructor: The constructor is the entity that contracts with the project owner to execute the construction phase of the project. In the Design-Build approach, the constructor is also responsible for the final design.

Design-Bid-Build (DBB): This is the traditional method of delivering a project in which design and construction are contracted with two separate entities.

Design-Build (DB): Design-Build is a project delivery method in which the owner procures both design and construction services in the same contract from a single legal entity referred to as the design-builder.

Design-Build-Operate-Maintain (DBOM): In this delivery method the owner contracts out the design and construction as well as the operation and maintenance of the project to a single entity.

Decision Factor: A variable in the Weighted Decision Matrix (Tier 2 of the proposed Project Delivery Selection System) that is derived from the project goals and pertinent issues to aid in the project delivery method decision is referred to as a *decision factor*.

Go/No-Go Decision Points: A pertinent issue or decision point that excludes a project delivery method from further consideration is called a Go/No-Go Decision Point.

Guaranteed Maximum Price (GMP): A price mechanism in which the owner is committed to reimburse the project costs up to a predetermined ceiling. Any cost overrun above that ceiling is a risk that the constructor takes.

Pertinent Issues: The term *pertinent issue* refers to 24 pertinent issues identified and explained in this guidebook that influence the selection of the project delivery method.

Probabilistic Risk Analysis: This is a systematic approach for evaluating the severity and likelihood of project risks. The results of Probabilistic Risk Analysis are expressed in terms of probability distributions and ranges for project cost or project duration.

Project Delivery Decision Report: This is an archival report that communicates and justifies an individual project delivery decision to interested stakeholders.

Project Delivery Method: The project delivery method (or project delivery system) is the process by which a construction project is comprehensively designed and constructed for an owner. It refers to all the contractual relations, roles, and responsibilities of the entities involved in a project.

Project Delivery Selection System: This is the decision support system developed in this guidebook consisting of three tiers (analytical, weighted-matrix and risk-based) to help transit agencies select the most suitable delivery method for their projects.

Project Goals: Project goals are statements of technical or performance objectives that communicate the importance of project issues such as time, cost, quality, maintainability, and sustainability.

Project Lifecycle: Project lifecycle is the duration of a project, starting at project germination and including project conceptual, preliminary, and detailed design as well as the procurement and construction phases. It ends by the end of project operation and maintenance phase.

Project Stakeholder: Any individual or entity that has an interest in a project that may be directly involved in the project (e.g., the designer or contractor) or be affected by the project completion (e.g., communities or business owners adjacent to transit corridor) is a *project stakeholder*.

Qualitative Risk Approach: In this guidebook, a qualitative risk analysis approach is an approach where major project risks are identified and allocated to the parties best able to bear them. Risk identification and a risk-allocation matrix are the outcomes of this approach.

Quantitative Risk Approach: A risk analysis approach in which the project risks are quantified in terms of ranges and probability of occurrence is called quantitative risk approach. This approach usually applies various probabilistic models to arrive at a probability distribution for the parameter under study (e.g., project cost).

Risk-allocation Matrix: It is a tool used by risk analysts to assign major project risks to various entities based on the contractual mechanisms that determine project risk distribution.

Risk Allocation: Assigning a risk to a party in a design or construction contract.

Risk Factors: Risk factors are events that may have an adverse impact on project cost and schedule. Examples of risk factors may be the risk involved in utility relocation, latent underground conditions, inflation, etc.

Risk Management: All of the steps associated with managing risks, including risk identification, risk assessment, risk allocation and mitigation, risk monitoring and control.

Weighted Decision Matrix: This is a decision process that organizes Decision Factors in the rows of a matrix, and project delivery methods in the columns to structure a project delivery method decision. The Decision Factors are weighted by their importance to the project goals and scored by their alignment with each project delivery method. The weighted decision factors are summed up for each project delivery method for making the final decision.



APPENDICES C THROUGH H

Appendices C through H of this guidebook are available on the TRB website at http://trb.org/news/blurbs_detail.asp?id=10054. Titles of Appendices C through H are the following:

Appendix C: Forms for Project Description and Goals

Appendix D: Forms for the Analytical Delivery Decision Approach (Tier 1)

Appendix E: Forms for the Weighted-Matrix Delivery Decision Approach (Tier 2)

Appendix F: Procedures for Determining the Weights of Selection Factors in the Weighted-Matrix Delivery Decision Approach (Tier 2)

Appendix G: Form for the Optimal Risk-Based Approach (Tier 3)

Appendix H: Application of the Tier 1 and Tier 2 Approaches to a Hypothetical Project

Abbreviations and acronyms used without definitions in TRB publications:

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI-NA	Airports Council International-North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	Air Transport Association
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation



U.S. Department
Of Transportation
**Federal Transit
Administration**

Administrator

400 Seventh St. S.W.
Washington, D.C. 20590

C-13-01

November 6, 2001



Dear Colleague:

Welcome to the Federal Transit Administration's [Best Practices Procurement Manual](#) website.

Since the original publication of the manual on May 7, 1996, we have added a number of new topics and have identified a variety of additional best practices. Many thanks to all of you who have contributed ideas, topics, and "best practice" content, as well as those who have helped to make this document as "customer-friendly" as possible.

We continue to actively seek grantee and industry comments, suggestions for new topics, and "best practice" proposals, so the manual can be kept up-to-date and relevant to your needs. Your thoughtful contributions will help ensure that America's transit systems keep our communities safe and moving.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Dorn".

Jennifer L. Dorn
Administrator

FEDERAL TRANSIT ADMINISTRATION

BEST PRACTICES PROCUREMENT MANUAL

Preface

Purpose

This Manual provides recipients of Federal Transit Administration (FTA) funds suggestions on conducting third party procurements to assist them in meeting the standards of FTA Circular 4220.1E (the Circular).

The Manual consists of suggested procedures, methods, and examples which FTA encourages.

These are based on the Federal acquisition process, Comptroller General decisions, and "Best Practices" of grantees and others in the industry.

Please Note, Suggested Procedures Are Not Mandatory.

The Manual is envisioned as an ongoing and expanding document. It will be updated periodically with both new subjects as well as additions or changes to existing subjects. The additions/changes will be based on: (1) changes in statutes, (2) the result of recent court decisions, (3) the need for further clarification, and (4) new or innovative practices of grantees.

The Manual is located on the Internet World Wide Web under the FTA Homepage. The internet location enables FTA to provide its customers with the latest and newest information using the fastest means possible. Additionally, FTA solicits "best practices" of its grantees and others in the industry. After review by FTA, new and or innovative practices will be added to the manual. FTA is being assisted in this endeavor by Leon Snead & Company, P.C. Their Internet address is: [leonsnead.companypc@erols.com]. All proposed "best practices" should be sent to this Internet Address.

Scope

The Manual consists of 11 chapters and Appendices as follows:

1. Purpose and Scope
2. Procurement Planning & Organization
3. Specifications
4. Methods of Solicitation and Selection
5. Award of Contracts
6. Procurement Object Types: Special Considerations
7. Disadvantaged Business Enterprise
8. Contract Clauses
9. Contract Administration

10. Close-Out

11. Disputes

Appendix A: Governing Documents

Appendix B: Examples

Appendix C: Reserved

Appendix D: Annotated FTA Circular 4220.1E. For a copy of this Circular, go to

www.fta.dot.gov/ftahelp/fta_c4220_1E.doc.

Format

The Manual is divided into 11 Chapters and Appendices (see above). This format will allow FTA to send updates as necessary and allows you to locate them easily. As sections of the Manual are updated, the last revision date is indicated for that section in parentheses.

Introduction

You are responsible for ensuring full and open competition and equitable treatment of all potential sources in the procurement process. You are also responsible for planning, solicitation, award, administration and documentation of all Federally funded contracts.

During the procurement process, the Procurement Officer is responsible for making comprehensive business judgments based upon the application of sound procurement policies and procedures.

This Manual will not make business judgments for the Procurement Officer. It will aid him/her in performing the steps necessary to ensure public funds are expended properly and will protect the integrity of the grantees' procurement process.

BEST PRACTICES PROCUREMENT MANUAL**RECENT UPDATES TO BPPM**

<u>Revision Date</u>	<u>Section No.</u>	<u>Subject</u>
October 2005	1.3.3.10	Disposition of Surplus (<i>Revised</i>)
October 2005	4.6.4	Unsolicited Proposals (<i>New</i>)
October 2005	7.2.4	Prompt Payment Mechanisms (<i>Revised</i>)
October 2005	7.3.5.4	Good Faith Efforts to Meet Contract Goals (<i>Revised</i>)
October 2005	7.3.5.5	Counting DBE Participation toward the Goal (<i>Revised</i>)
October 2005	Appendix A.1	Federally Required and Other Model Contract Clauses- #28 (<i>Revised</i>)
April 2005	2.3.2	Independent Grantee Cost Estimate (<i>Revised</i>)
April 2005	2.4.3.1	Fixed Price Contracts (<i>Revised</i>)
April 2005	2.4.4.3	Progress Payments (<i>Revised</i>)
April 2005	5.3.2	Debriefing of Offerors (<i>Revised</i>)
April 2005	6.1.7	Partnering (<i>Revised</i>)
April 2005	8.2	Surety Bonds (<i>Revised</i>)
April 2005	8.2.1	Performance Bonds (<i>Revised</i>)
April 2005	10.3	Record Retention (<i>Revised</i>)
April 2005	Appendix B.20	Independent Cost Estimate (ICE) Form (<i>New</i>)
March 2004	1.3.3.5	Intergovernmental Agreements, Joint Procurements, Piggybacking/Assignments (<i>Revised</i>)
March 2004	4.4.3	Single Bid (<i>Revised</i>)
March 2004	6.5	Architect-Engineering Services (<i>Revised</i>)

March 2004	Appendix A.2	Dear Colleague Letters (<i>Revised</i>)
November 2003	1.1.1	FTA Circular 4220.1E (<i>Revised</i>)
November 2003	1.1.7	FTA Procurement System Reviews (PSRs) (<i>Revised</i>)
November 2003	1.1.9	Procurement System Self-Assessment Guide (<i>New</i>)
November 2003	1.3.3.4	Real Estate Contracts (<i>Revised</i>)
November 2003	1.3.3.11	Operating Assistance, Preventive Maintenance, CMAQ and JARC Projects (<i>Revised</i>)
November 2003	4.1.2	Consolidation of Micro-Purchases (<i>New</i>)
November 2003	4.3.2.4	Pre-Bid and Pre-Proposal Conferences (<i>Revised</i>)
November 2003	4.3.3.2.2	Buy America Certification (<i>Revised</i>)
November 2003	4.5.2	Evaluation of Proposals (<i>Revised</i>)
November 2003	6.6	Insurance (<i>Revised</i>)
November 2003	9.4	Approval of Subcontractors (<i>formerly Section 5.1.5</i>)

FEDERAL TRANSIT ADMINISTRATION BEST PRACTICES PROCUREMENT MANUAL

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1.1 ASSISTANCE, GUIDANCE AND REQUIREMENTS

The topics addressed by this Manual are developed according to a standardized format, which consists of three parts: (1) Requirements, (2) Discussion and (3) Best Practices.

REQUIREMENT

Where a *requirement* exists in the third-party procurement regulations which grantees must follow, a table entitled REQUIREMENT will set forth the pertinent sections of the *FTA Circulars*, the *Master Agreement (MA)*, the *Code of Federal Regulations (CFR's)* or an *FTA Dear Colleague Letter*. When there is a mandatory requirement it will be clearly set forth as such.

DISCUSSION

Following the statement of the requirement, or if there is no requirement as such, there will be a *discussion* section giving some definition and guidance concerning the meaning or purpose of the topic being presented.

Best Practices

In those situations where the Federal or grantee practices have proven to be effective, the Manual will present these *best practices* for the assistance and guidance of the grantee. The procedures and practices presented are not mandatory unless so identified. These best practices are meant to be informative and helpful to the grantee community. They are offered for the guidance and assistance of the grantee, but it is also recognized that a grantee may have a unique situation that precludes it from adopting the procedures of another grantee in a certain area.

1.1.1 FTA Circular 4220.1E

This Circular sets forth the requirements a grantee must adhere to in the solicitation, award and administration of its third party contracts. The Circular contains 54 mandatory procurement standards that grantees must meet in their procurement operations. These 54 standards are set forth in Appendix B.19 – *Mandatory Procurement Standards Worksheet*. The “Worksheet” provides cross-references to specific paragraphs in the Circular where the standards may be found, and a column for grantees to cross-reference the standards to their own policies and procedures. Grantees are encouraged to review their written procurement policies to ensure that they cover each of the 54 mandatory standards.

The requirements of the Circular are based on the common grant rules found at 49 CFR Part 18 (State and Local Governments) and 49 CFR Part 19 (Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations), and the Federal Transit Laws. The Best Practices Procurement Manual will state the requirements of this Circular wherever they pertain to a topic being covered by the Manual. Since this Circular is updated periodically, grantees must ensure that they consult the latest edition of the Circular.

This Circular replaces 4220.1D dated 4-15-96 and Change 1, dated 8-4-98. The Circular incorporates policy updates contained in several Dear Colleague letters issued since 1996.

Annotated Circular - FTA has also published an annotated version of this Circular with interpretive comments. These comments were developed to help avoid incorrect interpretations of the Circular that have evolved over time. The comments explain what FTA believes the law and regulations conveyed through the Circular actually require of its grantees. As applicable laws, regulations and contracting practices evolve, FTA will use the annotated Circular to convey its views to FTA grantees and the transit industry as a whole. As changes are made in the comments, a date will be inserted with the change to notify the reader of when the change was made. The *Annotated Circular* is available online at:

www.fta.dot.gov/ftahelp/line/fta_c4220_1E.doc.

1.1.2 FTA Waivers and Approvals

Grantees are required to process their requests for waivers and approvals required by Circular 4220.1E through their regional FTA offices. The regional FTA offices will instruct grantees as to the required content and format of these requests. The FTA Administrator has established the FTA signatory levels for granting *waivers*, and for the *approval of actions* which require FTA approval in the Circular, as follows:

Authority to grant waivers - Administrator

Authority to grant approvals - Associate Administrator for Administration

Waivers pertain to those third party contract actions which a grantee is not authorized to take under the Circular, but for which FTA has authority to make exceptions.

Approval/disapproval covers third party contract actions which a grantee is authorized to take under the Circular only after receiving FTA approval. An example would be the use of advance payments for an individual procurement.

1.1.3 Master Agreement

The FTA Master Agreement contains standard terms and conditions governing the administration of a Project supported with Federal assistance awarded by the FTA through a Grant Agreement or Cooperative Agreement with the Recipient. The FTA Master Agreement is updated annually at the start of each fiscal year (October 1) and published on the FTA web site.¹ The Master Agreement contains procurement requirements that may be referenced in the Best Practices Procurement Manual.

¹ - http://www.fta.dot.gov/16874_16882_ENG_HTML.htm.

1.1.4 Federal Acquisition Regulation (FAR)

This Manual will frequently contain references to the FAR. These references are, with one exception, always for information purposes and are not intended to suggest that grantees must follow the FAR.² Neither grantees nor their contractors are required to follow the FAR. The FAR citations are given in order to inform grantees how the Federal government treats a particular issue but the Federal practices are not binding on grantees.

The Federal Acquisition Regulation is available at the following internet address:

<http://www.arnet.gov/far>.

1.1.5 FTA Dear Colleague Letters

The FTA Administrator periodically issues *Dear Colleague Letters* to the FTA grantee community. When these letters affect grantee procurement operations by imposing new FTA requirements or clarifying earlier FTA policy statements, the Manual will be updated to reflect the new Dear Colleague Letter. Those Letters that affect grantee procurement operations are contained in Appendix A.2 of the Manual.

1.1.6 Locating FTA Documents

The *FTA HelpLine* web site (see 1.1.8 below) contains a link to important FTA documents, such as Circulars, Dear Colleague Letters, etc. You may access these documents by using the *Online Tools & Resources* tab at the following Internet address: www.fta.dot.gov/ftahelp/line/index.htm. You may also access FTA documents at the FTA web site address: www.fta.dot.gov under the “grantee” page tab.

1.1.7 FTA Procurement System Reviews (PSRs)

FTA conducts periodic reviews of its grantee’s procurement systems. These reviews are conducted in accordance with the *Guide for Procurement System Reviews*, which FTA has developed in order to evaluate the grantee’s compliance with the requirements of FTA Circular 4220.1E. Grantees now have access to this *Guide* and can effectively evaluate their own procurement system’s compliance with 4220.1E using the *Guide*. Section III.2 of the *Guide* contains checklists for each type of contract to be reviewed as well as for the procurement system-wide elements that FTA also evaluates. The *Guide* is now available on the Internet at the following FTA web site address:

http://www.fta.dot.gov/grant_programs/fta_oversight/4022_8480_ENG_HTML.htm.

² - Grantees are required to use the Federal cost principles in FAR Part 31 to determine allowable costs on cost-type contracts and when negotiating (fixed) prices for contracts and modifications that are based on estimated costs. See BPPM Sections 2.4.3.1 and 2.4.3.2.

Best Practices

Audit Follow-Up and Tracking System - Grantees should consider adopting a tracking system for following up on the findings generated by FTA Procurement System Reviews (PSRs), FTA Triennial Reviews, and other public audits or internal audits conducted by the agency's own management staff. The Los Angeles County Metropolitan Transportation Agency (LACMTA) has developed an in-house, MS Access-based database to manage audit findings and track corrective actions to ensure they are implemented as proposed. This tracking system - the Findings and Recommendations Management System (FARMS) - is a central repository for all audits, findings, recommendations, audit responses, proposed corrective actions, and audit follow-up and close-out information. Information can be sorted in a variety of ways such as by executive area, audit source, findings, dates, or recommendation status (e.g., open, closed). Tickler reports are routinely routed to inform appropriate parties of approaching or missed deadlines and quarterly reports of implemented actions are routed to management. This system enables the agency to track who proposed to do what by when. The system is especially valuable when agency management changes (usually with voting cycles) and incoming managers need to be made aware of commitments made by their predecessors. LACMTA has seen a number of benefits from their tracking system:

- Minimizes likelihood of recurring findings that can lead to fines, schedule delays, fraud, waste, or abuse.
- Assures Management corrective action has been taken.
- Maximizes audit value by tracking each finding and recommendation through resolution.
- Automatically compiles Lessons Learned and Best Practices and greatly enhances reporting options.

LACMTA has agreed to make their system available to any agency that wishes to implement an audit follow-up and tracking system capability.³

1.1.8 FTA Helpline

FTA has initiated a *Third Party Procurement HelpLine* to provide a means for FTA customers to get answers to their procurement questions. The goal is to answer questions within 48 hours of receiving them. The web site also contains a topical index to *Frequently Asked Questions* and helpful links to important FTA documents, the FAR, the BPPM, etc. The Internet address is: <http://www.fta.dot.gov/ftahelpline/index.htm>.

³ - Contact Michael Flores, LACMTA Audit Manager, at 213-922-6345 or floresm@mta.net.

1.1.9 Procurement System Self-Assessment Guide

FTA has developed a *Procurement System Self-Assessment Guide* for grantees. This *Guide* is provided for assessing those particular areas of procurement that have historically been the most problematic, as determined by oversight reviews of transit agency procurement systems (the Procurement System Reviews conducted by FTA). The *Guide* discusses the top ten areas of deficiency consistently found during the Procurement System Reviews. This Guide may be accessed online at: http://www.fta.dot.gov/ftahelpline/Cover_Self-Assessment_Guide.htm.

1.2 IDENTIFYING A CONTRACT

As defined by the Federal Acquisition Regulation, a "contract" means a mutually binding legal relationship obligating the seller to furnish the supplies or services (including construction) and the buyer to pay for them. Contracts would include bilateral instruments, awards and notices of awards; job orders or task assignment letters issued under basic ordering agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance; and bilateral contract modifications. Contracts do not include grants and cooperative agreements.⁴

The parties to a contract must possess the legal capacity to enter into the contract, and they must assent to the terms of the contract. The terms of the agreement must not require the performance of an illegal act by the parties. Contracts may be either oral or written in form. The subject matter of a contract determines which primary law applies. Generally, Common Law rules apply for contracts. However, the *Uniform Commercial Code* (UCC) Article 2 applies when the contract is for the sale of goods.

1.2.1 Offer, Acceptance, Consideration

Offer, acceptance and consideration are three essential elements of a contract.

Offer - The offer to enter into a contract can be made by either party to the contract. In third party contracting, the offer is normally made by the contractor. The grantee issues solicitations for offers either by an Invitation for Bid (IFB) or a Request for Proposal (RFP). The offer is made when the contractor submits a signed bid or proposal in response to the grantee's solicitation. In small purchases, however, the roles are reversed. The grantee issues a purchase order, which is an offer, to buy supplies or services at a specified price (usually obtained by a Request for Quotation that the grantee has issued earlier).

The party to whom the offer is made, the offeree, may accept the offer until it is terminated by the offeror. Termination of an offer can occur in one of many different ways:

⁴ - FAR 2.101.

- **Expiration.** The offer is not accepted within the specified time period or within a reasonable time, if no time period is stated. The offeree may agree to extend its offer beyond the specified time period without any changes or qualifying terms to its offer.
- **Revocation.** The offeror may withdraw the offer. The withdrawal is effective when received by the offeree. Generally, the revocation may occur at any time prior to acceptance by the offeree.
- **Rejection.** The offeree may reject the offer, and the rejection is effective when received by the offeror.
- **Counter-offer.** The offeree proposes new terms, not an inquiry regarding the possibility of new terms. The offeree's counter-offer to the offeror is effective when received by the offeror.
- **Death.** The offer is terminated when either the offeror or offeree dies. However, the offer passes to the personal representative of the offeree's estate in an option contract.
- **Illegality.** The offer is void if the subject matter is illegal.
- **Destruction.** The offer is terminated if the subject matter is destroyed.

Acceptance - The offer must be accepted unequivocally. The offeree must accept the offer without changing or qualifying the terms of the offer. If the terms are changed, the offer is rejected and a counter-offer is made. This terminates the original offer.

The offer may be accepted by any reasonable means of communication (i.e., fax, telephone, etc.) unless the offeror indicates a specific method of acceptance. As a general rule, the acceptance is effective when mailed by the offeree, except where the offeror specifies the acceptance must be received by a specific date and time.

Grantee procurements involve two processes for acceptance of offers. When the grantee has issued an IFB or RFP, acceptance occurs when the grantee assents to the terms made by the bidder or offeror in its bid or proposal. The grantee accepts the offer by signing the contract and issuing the offeror a notice of award. For small purchases the contractor accepts the offer made by the grantee in its purchase order by either signing the order (contract), if so required by the purchase order, or by actually performing in accordance with the terms of the purchase order.

Consideration - Each party must give consideration for an agreement to be a contract. Consideration exists when something of value is given up in a bargained-for exchange. The following must exist:

- **Legal benefit.** Someone receives something they had no prior legal right to receive.

- Legal detriment. Someone gives up something they did not have to relinquish. This detriment does not have to involve a tangible detriment, only a legal detriment.

1.2.2 Oral v. Written

Statute of Frauds - Generally, the Statute of Frauds dictates whether contracts should be oral or written. In order to be enforceable, the Statute of Frauds requires certain contracts to be written and signed by the party charged with performing the contract. The following contracts must be in writing:

- An agreement in which the period of performance is greater than one year. The time period starts the date the contract is made, not on the date the performance commences.
- Contracts regarding real property; i.e., mortgages, easements, sale of real estate, etc.
- Contracts of guaranty; i.e., where someone guarantees to pay the obligation of another (send the deliverable item to X, and if X does not pay, I will).
- Contracts involving the sale of investment securities.
- Promises by an executor/administrator to be held personally liable for the debts incurred by an estate.
- Contracts for the sale of goods in excess of \$500.

Consult your state law for applicable requirements.

1.2.3 Mutual and Unilateral Mistakes

If a material mistake has been made by one or both parties, there is a possibility the contract is voidable. If a material mistake was made by both parties (mutual mistake), either party has the option to void the contract. If a material mistake was made by one party (unilateral mistake), the contract remains valid. However, if the other party is aware of or should have been aware of the mistake, the contract is voidable.

1.2.4 Procurements Often Overlooked

Many organizations may be overlooking procurements which could benefit from the application of the procedures outlined in this manual. These overlooked areas would include: utility services, mailing/shipping services, telephone service, electric and gas service. In the past these areas have been under the control of a single source supplier, but recent deregulation has, or will soon, open up many of these areas to competitive procurement possibilities.

1.3 APPLICABILITY OF FEDERAL REQUIREMENTS

One of the principles of contracting with Federal funds received directly or indirectly from FTA is a recognition that, as a condition of receiving the funds, certain specific Federal requirements must be met not only by the recipient of the funds (the grantee) but also by sub-recipients and a grantee's third party contractors. The Federal requirements to be met by the grantee's third party contractors will be defined by the clauses included in the grantee's third party contracts. It should also be noted that third party contractors are not required to follow FTA Circular 4220.1E in their subcontracting activities.

The specific requirements for your particular grant of funds will be found in the Master Agreement incorporated into the Grant Agreement or Cooperative Agreement that was executed by you as a grant recipient. Different rules apply depending upon whether you, as the recipient or subrecipient, are a state, local, or Indian tribal governmental entity or whether you are an institution of higher learning, a hospital, or another non-profit organization. Also, depending upon the type of Federal funds you receive (e.g., operating assistance) or the nature of the capital project you are involved in, the contractual sphere of Federal requirements may include your procurements regardless of whether Federal funds are actually drawn down to fund payments in a particular procurement.

As the person responsible for procurement within your agency, you must be aware that compliance with Federal requirements is a condition of receipt of Federal funds. Failure to comply with these provisions may, in accordance with the terms of your Grant or Cooperative Agreement, be grounds for default of that agreement and result in the loss of the funds.

1.3.1 Recipient and Subrecipient

DEFINITIONS

The Master Agreement⁵ provides the following definitions for "Recipient" and "Subrecipient".

Recipient - Any entity that receives Federal assistance directly from FTA to accomplish the project. The term "Recipient" includes each FTA "Grantee" as well as each FTA Recipient of a Cooperative Agreement. Except as FTA permits otherwise, the Recipient is the entire legal entity even though only a single organization within that entity is designated as the Recipient in the Grant Agreement or Cooperative Agreement.⁶

⁵ - Form FTA MA(12), October 1, 2005.

⁶ - Id. at Section 1.m.

Subrecipient - Any entity that receives Federal assistance awarded by an FTA recipient rather than from FTA directly. The term "subrecipient" also includes the term "subgrantee," but does not include "third party contractor" or "third party subcontractor."⁷

DISCUSSION

It is important to determine whether your agency is a recipient or subrecipient so as to determine what third party contracting rules under the Circular and 49 CFR Parts 18 and 19 (the "common grant" rules) are applicable to your procurements.

What Third Party Contracting Requirements Under 49 CFR Parts 18 and 19 and FTA Circular 4220.1E are Applicable to Recipients and Subrecipients?

Section 15 of the Master Agreement contains the requirements to comply with applicable procurement standards of 49 CFR Part 18.36 (state, local, and tribal governments) or 49 CFR Part 19.40 through 19.48 and Appendix A (hospitals, non-profits, and institutions of higher learning). For purposes of this discussion, it is important to recall that "recipient" includes "grantee," and "subrecipient" includes "subgrantee" other than third party contractors and subcontractors.

Paragraph 4 of the FTA Circular 4220.1E outlines four distinct rules relating to the applicability of the procurement requirements to recipients/grantees or subrecipients/subgrantees:

- 1. If a transit authority is both a direct recipient of Federal funds and a subrecipient of a State, the State may permit the transit authority to follow the requirements of the Circular instead of State procurement requirements, although it is not obligated to do so. If your transit authority is in this situation, make sure that the procurement requirements you are obligated to follow for Federally assisted procurements are clearly stated, preferably by both the State and FTA.**
- 2. When a "State"⁸ procures property or services under a grant or cooperative agreement with FTA, it will follow the same procurement policies and procedures it uses for procurements using non-Federal funds. States must, however, comply with the requirements of paragraphs 8.a (Full and Open Competition) and b (Prohibition**

⁷ - Id. at Section 1.p.

⁸ - See Paragraph 6.b., FTA Circular 4220.1E for definition of "State." Note that the definition in both this paragraph of the Circular and 49 CFR Part 18.3 specifically excludes "local governments" (as defined therein as well) from the definition of a "State." Thus, if you are a city government and a recipient/grantee, and if your state has a procurement statute that applies to "local government" procurements, you still must comply with the Circular and the provisions of 49 CFR Part 18.36(b) through (t). However, if you are a subrecipient/subgrantee of your state, you shall follow state law and procedures. The differences between these two instances may be subtle, but they are real differences that should be considered and addressed.

Against Geographic Preferences), and 9.d (Procurement of Architectural and Engineering Services (A&E)) of the Circular and must include in all purchase orders and contracts executed by it, or a subgrantee using Federal funds, all clauses required by Federal statutes, executive orders and their implementing regulations. Subgrantees of a "State" (except as indicated in subparagraph (4) below) shall follow State law and procedures when awarding and administering contracts.

- 3. For the purposes of this Circular, regional transit authorities are not State agencies or instrumentalities.**
- 4. Subgrantees of States which are institutions of higher education, hospitals or other nonprofit organizations and all other FTA recipients/grantees will administer contracts in accordance with the requirements of the Circular. Grantees and subgrantees that fall within this category shall use their own procurement procedures that reflect applicable State and local laws and regulations provided that the procurements conform to applicable Federal law. ²**

1.3.2 Federal Contractual Sphere

REQUIREMENT
<p>"...the Recipient agrees to include appropriate clauses in each third party contract stating the third party contractor's responsibility under Federal law, regulation, or directive, including any necessary provisions requiring the third party contractor to extend applicable requirements to its subcontractors to the lowest tier necessary."</p> <p style="text-align: center;">Master Agreement § 2.e.(2)(a).</p> <p>"This Circular applies to all FTA grantees and subgrantees that contract with outside sources under FTA assistance programs. FTA grant recipients who utilize FTA formula funds for operating assistance are required to follow the requirements of this Circular for all operating contracts. These requirements do not apply to procurements undertaken in support of capital projects completely accomplished without FTA funds or to those operating and planning contracts awarded by grantees that do not receive FTA operating and planning assistance."</p> <p style="text-align: center;">FTA Circular 4220.1E, Paragraph 4.</p> <p>"Project means activity or activities (task or tasks), listed in the Project Description, the Approved Project Budget, and any modifications stated in the Conditions to the Grant Agreement or Cooperative Agreement applicable to the project."</p> <p style="text-align: center;">Master Agreement § 1.1.</p>

⁹ - *Id.* at Paragraph 7.a.

There are several aspects of your grant agreement which together establish the sphere of procurements to which Federal requirements may apply. In general you may undertake capital projects wholly without Federal funds, and be confident that your grant agreements will not affect those procurements. However, Federal grant requirements apply to many contracts in addition to the contracts between you and your suppliers for which you intend to draw down Federal payments. Generally, the concept is that solely because of the receipt of Federal funds by a grantee, certain clauses and federal requirements are required to be included in contracts within the contractual sphere. There are four procurement contexts to which the concept is important:

1. The general "flow down" of Federal requirements in contracts;
2. The inclusion of all Federal requirements if the transit property receives operating assistance;
3. The inclusion of all Federal requirements in all elements and activities if the overall capital project (as defined in a full funding grant agreement) includes Federal funds; and,
4. The concept of a "minimal operable segment."

These concepts are highlighted below so you can be aware of them in your capital project planning and procurement planning processes. Each Federal requirement has applicability criteria deriving from statute, regulation, or policy. The sphere of contracts to which the requirements apply, if they are otherwise applicable, is affected by these four concepts:

1. Flow Down – Perhaps the easiest determinant of the sphere to visualize is the concept of “flow-down.” Federally required clauses and requirements, as a general rule, are required to be included in each third party contract at every tier and in each subrecipient agreement at every tier.¹⁰ When clauses are required to flow down, the clauses and requirements flow down to all levels of the Federal funding chain beginning with the grantee.
2. Inclusion of Federal Requirements when Receiving Operating Assistance - The second example of the sphere involves grantees receiving operating assistance. In this instance, all grantee procurements except for capital projects undertaken without Federal funds, must include all of the Federal requirements that would be included if the operating budget were fully Federally funded and must comply with the Circular.¹¹ FTA maintains that one dollar of Federal operating assistance converts

¹⁰ - The flow-down of clauses is not an absolute requirement; e.g. Drug and Alcohol Testing requirements apply only to the work of the prime contractor.

¹¹ - Paragraph 4, FTA Circular 4220.1E.

the operating funds of the transit property so that all such funds of the property therefore become subject to Federal requirements. The rules on this dimension of the sphere are clear -- if you receive operating assistance, the requirements of the Circular apply, even if you do not intend to use that assistance in support of any procurement action (e.g., you intend to apply all the operating assistance to pay salaries of your direct-hire bus operators).

3. Inclusion of Federal Requirements in Federally Funded Capital Projects - FTA has recently taken the position that, when a capital project requires a full funding grant agreement,

*... the Federal 'undertaking' in a Fully Funded Grant Agreement (FFGA) will no longer be segmented into Project and Local Activities. All activities related to a Federal undertaking will be identified as the Federal Project. The Federal funds will be distributed among all the activities in the project at a level funding ratio equal to the percentage of Federal financial participation in the entire project. Thus, all the elements and activities of the project, as described in the FFGA will be funded, in part, with Federal funds; and, the requirements attached to the use of Federal funds will apply to each such task, unless otherwise exempted as provided in the applicable laws, regulations and policies.*¹²

Regardless of how large or small the percentage of Federal funding is, where a full funding grant agreement with the FTA is executed, all elements of the project identified in the agreement are within the sphere and must be procured in compliance with Federal requirements.

4. Minimal Operable Segment - In the case of a multi-task capital undertaking, the sphere includes a segregable portion of the undertaking, or a project portion that has independent functional utility. Under this concept, FTA and your agency identify a segment of the overall undertaking that represents *the minimal segment that can be feasibly operated independently*. Imagine you are able to overmatch Federal funds to construct a badly needed new fueling station with 85% state and local money. FTA's policies may not apply to every related expenditure of these state and local funds, e.g., landscaping or a nearby tire storage structure; however, neither will FTA apply its policies to the mathematically minimum portion of the project with no independent utility (e.g., applying FTA policies to the roof, alone); rather you must define a segregable project with FTA to which the Federal requirements apply, and you may then have additional latitude in the remaining portions undertaken without Federal funds. The full funding grant agreement will cover all of the necessary elements to build and operate the segment -- a station at each end of the segment, land to build the stations on, rail cars to run on the segment, systems to support the rail cars, rail on

¹² - Letter from FTA Administrator to Executive Director, Dallas Area Rapid Transit dated March 3, 1992, page 2.

which the cars will run, etc. Federal requirements of the Circular apply to all of the individual contracts relating to these elements because they are part of the minimal operable segment and within the Federal contractual sphere.¹³

1.3.3 Types of Contract Actions

Details and Best Practices for meeting the requirements for various types of contract actions that are described below can be found in other sections of the manual.

1.3.3.1 Supplies, Services, Equipment and Construction

REQUIREMENT
FTA Circular 4220.1E defines the requirements a grantee must adhere to in the solicitation, award and administration of its third party contracts. Such contracts would include the procurement of supplies, services, equipment and construction.

1.3.3.2 Legal and Associated Services

REQUIREMENT
The requirements of FTA Circular 4220.1E apply to the procurement of legal and associated services, such as paralegals, investigators, expert witnesses, etc. if Federal funds are being used to fund these contracts (i.e., if receiving operating funds or if the legal services are funded by a capital grant).

DISCUSSION

As noted above, the requirements of FTA Circular 4220.1E apply to the procurement of legal and associated services, such as paralegals, investigators, expert witnesses, etc. if Federal funds are being used to fund the contracts for legal services. FTA Circular 4220.1E would not apply if the legal services are funded entirely with local funds. The Circular requires such services to be procured competitively, as with other types of services. However, there may be cases where the grantee has pending litigation which might be jeopardized through a public disclosure which would result from advertising the procurement beforehand. In such cases the grantee may have valid grounds for limiting

¹³ - In discussing statutory and regulatory requirements, Paragraph 16 of FTA Circular 4220.1E advises grantees to contact other Federal agencies for specific guidance concerning the cross-cutting requirements of those agencies. Section 8.1 of the BPPM, which discusses the federal contract clauses, will cross-reference other agencies requirements, whenever possible.

the competition to the degree of not publicly advertising the procurement. In such cases a waiver request should be submitted to the FTA.

1.3.3.3 Employment Contracts

These are contracts with individuals that result in those individuals becoming “employees” of the agency. These are not "third party contracts" within the meaning of FTA Circular 4220.1E, and thus the requirements of that Circular do not apply to employment contracts. The term “employment contract” does not refer to a contract that retains a consultant to perform temporary services for the agency. The individual retained on these consultant-services contracts remains an independent contractor and does not become an employee of the agency; thus these contracts are not “employment contracts,” and they are subject to the requirements of FTA Circular 4220.1E.

1.3.3.4 Real Estate Contracts

REQUIREMENT
<p>Requirements related to the acquisition, use and disposal of real property may be found in the following regulations:</p> <p>(a) FTA Circular 5010.1C, <i>Grant Management Guidelines</i>, Chapter II-2 <i>Real Property</i>. This Circular defines the requirements of the Federal Transit Laws which are codified at 49 U.S.C. Chapter 53.</p> <p>(b) 49 CFR § 18.31 <i>Real Property</i>, and 49 CFR Part 24, Subpart B <i>Real Property Acquisition</i>.</p> <p>(c) Master Agreement MA(12) Section 19.</p>

DISCUSSION

The acquisition of real property, either by purchase or lease, is not subject to the requirements of FTA Circular 4220.1E. *Real property* is defined in 49 CFR § 18.3 as “land, including land improvements, structures and appurtenances thereto, excluding movable machinery and equipment.” The acquisition of easements and rights of way are considered real estate acquisitions and the requirements discussed herein pertain to these types of acquisitions.

Real property acquisition, use and disposal is also covered by FTA Circular 5010.1C, Chapter II-2; 49 CFR Part 18.31; 49 CFR Part 24 Subpart B; and by the FTA Master Agreement, Section 19.¹⁴ It is important that the grantee be familiar with the

¹⁴ - MA(12), dated October 1, 2005.

requirements established by FTA in Circular 5010.1C, Chapter II-2. This circular establishes procedures to be followed by grantees in the following areas:

- **The conduct of Hazardous Waste Site Assessments before acquiring real property.**
- **The conduct of an independent appraisal by a certified appraiser.**
- **The requirement for a review appraisal of the initial appraisal.**
- **FTA review and concurrence requirements related to the grantee's offer to buy the property.**
- **Incidental use of acquired real property as a means to supplement transit revenues.**
- **Disposition of excess real property by sale, transfer to other programs, etc.**
- **The requirement to prepare an excess property utilization plan for all real property no longer used for its original purpose.**

1.3.3.5 Inter-Governmental Agreements, Joint Procurements, Piggybacking

REQUIREMENT
<p>FTA Circular 4220.1E, paragraph 7.e. encourages inter-governmental procurements:</p> <p>e. <u>Intergovernmental Procurement Agreements.</u></p> <p>(1) Grantees are encouraged to utilize available state and local intergovernmental agreements for procurement or use of common goods and services. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications (including Buy America) are properly followed and included, whether in the master intergovernmental contract or in the grantee's purchase document.¹⁵</p>

¹⁵ - Sub-paragraph (1) looks primarily to State government contracts that allow subordinate government agencies to buy from established schedules akin to the GSA schedules in Federal practice. FTA believes grantees may buy through these contracts provided all parties agree to append the required Federal clauses in the purchase order or other document that effects the grantee's procurement. When buying from these schedule contracts, grantees should obtain Buy America certification before entering into the purchase order. Where the product to be purchased is Buy America compliant, there is no problem. Where the product is not Buy America compliant, the grantee will still have to obtain a waiver from FTA before proceeding.

- (2) Grantees are also encouraged to jointly procure goods and services with other grantees. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications are properly followed and included in the resulting joint solicitation and contract documents.¹⁶
- (3) Grantees may assign contractual rights to purchase goods and services to other grantees if the original contract contains appropriate assignability provisions. Grantees who obtain these contractual rights (commonly known as 'piggybacking') may exercise them after first determining the contract price remains fair and reasonable.¹⁷

DISCUSSION

Piggybacking - Your Agency may be able to take advantage of existing contracts awarded by other governmental entities for goods and services which you currently need. This practice has become known as “piggybacking.” Piggybacking is defined by FTA Circular 4220.1E, paragraph 6.e, as follows:

*“Piggybacking” is an assignment of existing contract rights to purchase supplies, equipment, or services.*¹⁸

The use of piggybacking, which involves assignment of contracts or portions of contracts from the original purchasing agency to another agency, is discussed in the BPPM, Section 6.3.3 - *Joint Procurements of Rolling Stock and “Piggybacking.”* Appendix B. 16 of the BPPM contains a *Piggybacking Worksheet* that will assist a grantee wishing to piggyback another agency’s contract to work through the FTA requirements that must be met in order for piggybacking to be permissible.

Adding Federal Clauses to Existing Contracts - FTA’s policy regarding the addition of Federal clauses to existing contracts distinguishes between State GSA-type contracts and

¹⁶ - Sub-paragraph (2) reflects FTA’s belief that grantees should consider combining efforts in their procurements to obtain better pricing through larger purchases. Joint procurements offer the additional advantage of being able to obtain goods and services that exactly match each cooperating grantee’s requirements. We believe this is superior to the practice of ‘piggybacking’ since ‘piggybacking’ does not combine buying power at the pricing stage and may limit a grantee’s choices to those products excess to another grantee’s needs.

¹⁷ - Sub-paragraph (3) reflects grantees’ continuing ability to assign contractual rights to others – ‘piggybacking.’ FTA believes it is extremely important that grantees ensure they contract only for their reasonably anticipated needs and do not add quantities or options to contracts solely to allow them to assign these quantities or options at a later date.

¹⁸ - FTA’s definition of “Piggybacking” in 4220.1E differentiates this practice from joint procurements or other intergovernmental agreements.

contracts awarded by other grantees. For example, in the recently issued Circular 4220.1E, paragraph 7.e.(1), *FTA allows grantees to modify State GSA-type contracts and add Federally-required clauses and certifications when the grantee issues the first purchase order against the contract. However, FTA has taken the position that grantees may not add Federal clauses and certifications to their own contracts or those of other grantees in order to purchase against these contracts with Federal funds.* The rationale is that, in a State GSA-type contract, the purchase order is the transit community's initial work on the contract – much as any buy off the Federal GSA IT schedule will be when a grantee chooses to use this Federal contract. In other cases (like transit agency A buying off transit B's contract), the transit-unique rules are in place and known from the beginning, there is no expressed intent in the common grant rule (as with State schedules) to balance the rules against each other, and it would infer that a transit agency could essentially avoid most Federal rules by placing orders through another transit agency. In short, the integrity of the system would be threatened by extending the after-the-fact option beyond schedule purchases.

Joint Procurements - You may also wish to plan procurements in advance with other agencies or governmental users, and competitively award contracts that several governmental entities can draw upon to meet their needs. Such an approach would create economies of scale, reduce procurement lead times in the case of being able to use existing contracts, and reduce administrative effort and expense. Any third party contracts resulting from or utilized by grantees under inter-governmental agreements are subject to the requirements of FTA Circular 4220.1E. Inter-governmental agreements not involving third party contracts would not be subject to FTA Circular 4220.1E. The topic of joint procurements that makes use of advance planning by several agencies is discussed in the BPPM, Section 6.3.3 - *Joint Procurements of Rolling Stock and "Piggybacking."*

Best Practices

Piggybacking - If it appears that there may be an existing governmental contract which may be used for a specific need, you will first want to obtain a copy of the entire contract and review it carefully to determine if it contains the provisions required by FTA Circular 4220.1E. This is an important first step, because the requirements of the Circular apply to procurements made through inter-governmental contracts and assignments. If the contract lacks required provisions, you may be able to have it modified by the awarding Agency to include the necessary Federal clauses. Among the steps you may want to take are the following:

1. Determine that the contract is still in effect or can be modified by the awarding Agency to permit sufficient lead time to make the required deliveries to your Agency.
2. Determine that the specifications in the existing contract will meet your needs.
3. Review the terms and conditions carefully to determine that they are acceptable to you; e.g., warranty provisions, insurance requirements, etc.

4. Determine that the requirements needed by your Agency will not be *beyond the scope of the existing contract*, creating a sole-source (noncompetitive) add-on to the contract which will have to be justified in accordance with FTA Circular 4220.1E Paragraph 9.h. Generally, if you are working with an indefinite quantity contract you should have the needed flexibility to order additional quantities without having a "new procurement" action requiring a sole-source justification.
5. Determine that the contract was awarded competitively, either through sealed bids or competitive proposals. If the contract was a sole-source award, you will have to justify a sole-source award in accordance with FTA Circular Paragraph 9.h. and your Agency's procurement procedures.
6. You are not required to do a second price analysis if one was originally performed. However, you must determine that the contract prices originally established are still fair and reasonable. Circumstances should dictate the steps to be taken. For example, if the original award was made some time ago, you may want to do a market survey and/or perform price analysis to ensure that the prices are still fair and reasonable (even if the original award was competitive and a price analysis was performed initially). Similarly, if your deliveries are to be made to a local or centralized delivery point and the original contract calls for statewide deliveries, you should be entitled to a price reduction. See BPPM Section 5.2 *Cost and Price Analysis* for a discussion of price analysis techniques.
7. Determine that the contractor has submitted all federally required certifications to the awarding Agency; e.g., Buy America, debarment, restrictions on lobbying, etc. See paragraph above *Adding Federal Clauses to Existing Contracts* and BPPM Section 4.3.3.2 *Federally Required Submissions with Offers*.
8. Work through the items in the Piggybacking Worksheet in Appendix B. 16 (and explained in Section 6.3.3 - *Joint Procurements of Rolling Stock and Piggybacking of the BPPM*). Note that some of the items on this Worksheet may overlap with items already mentioned above.
9. You should prepare a Memorandum for the Record documenting your analysis of the various items mentioned above. This will constitute the *Written Record of Procurement History* required by Paragraph 7.i. of FTA Circular 4220.1E.

Joint Procurements - When it appears that your agency has a common requirement with another governmental user, and that a joint procurement is feasible, you will want to carefully consider whether a joint procurement will result in obtaining the best price for all of the parties to the procurement. It is quite possible that substantial differences in the requirements (delivery schedule, quantities, location, etc.) of one party to the joint procurement will result in increased costs to the other parties and thereby negate other benefits of a joint procurement such as lower solicitation costs. You must also determine whether the different funding sources have different procurement regulations, especially where there are Federal and non-Federal requirements

affecting contract clauses, etc. Should conflicts occur, grantees should consult their respective legal counsels or request FTA pre-award review of their procurement (as permitted by FTA Circular 4220.1E, Paragraph 5.b.)

1.3.3.6 Subgrants

REQUIREMENT

FTA Circular 4220.1E, paragraph 4, defines the applicability of the Circular to subgrants:

4. APPLICABILITY. This circular applies to all FTA grantees and subgrantees that contract with outside sources under FTA assistance programs. . . .
 - a. States. When procuring property and services under a grant, a State will follow the same procurement policies and procedures that it uses for acquisitions that are not paid for with Federal funds. States must, at a minimum, comply with the requirements of paragraphs 7m, 8a and b, and 9e of this circular and ensure that every purchase order and contract executed by it using Federal funds includes all clauses required by Federal statutes and executive orders and their implementing regulations.
 - b. All Other Recipients. Subgrantees of states and all other FTA grantees (to include regional transit authorities) will administer contracts in accordance with this circular.

49 CFR § 18.37 – *Subgrants* requires States and all other grantees to ensure that their subgrantees comply with certain requirements. These requirements are discussed below.

DISCUSSION

Subgrants themselves are not "third party contracts" within the meaning of FTA Circular 4220.1E, and thus the requirements of that Circular do not apply to the subgrant awards. However, to the extent that the subgrantee contracts with third parties, the FTA Circular applies to such contracts awarded by the subgrantee.

All subgrantees are required to include in their contracts the clauses required by Federal statutes and executive orders and their implementing instructions. See BPPM Appendix A.1 Federally Required and Other Model Contract Clauses.

Subgrantees which are institutions of higher education, hospitals or other nonprofit organizations, and all subgrantees of grantees which are not States, are required to administer their contracts in accordance with all of the requirements of the FTA Circular 4220.1E Third Party Contracting Requirements. Subgrantees of states (excluding institutions

of higher education, hospitals or other non-profit organizations) are authorized to follow state law and procedures when awarding and administering contracts.

If you are a grantee awarding subgrants with FTA funds, you will want to have an overview system in place for periodic reviews of your subgrantees to ensure that they are in compliance with the requirements of FTA Circular 4220.1E and the requirements of 49 CFR Part 18.37. The Federal government practice (FTA) is to perform periodic Procurement System Reviews (PSR's) of its grantees, evaluating their procurement activities against the requirements of the circular. FTA has developed a *Procurement Systems Review Guide* for its review teams, and you may want to obtain a copy of this guide for your review of subgrantees. (See BPPM Section 1.1.7 - *FTA Procurement System Reviews* above). You should note that 49 CFR Part 18.37 imposes a responsibility on all grantees to ensure that their subgrantees have included all Federally required clauses in their contracts and that the subgrantees are aware of requirements imposed on them by Federal statute and regulation, including those requirements imposed by 49 CFR Part 18. 49 CFR Part 18.37(a)(3) specifically mentions a responsibility to include a clause in all cost reimbursement subgrants that the subgrantee comply with Part 18.42, which deals with retention and access requirements for records.

1.3.3.7 Equipment Leases

REQUIREMENT

Requirements related to the lease of equipment and facilities may be found in the following regulations:

- (a) FTA Circular 4220.1E generally, and Paragraph 7.d which requires, where appropriate, an analysis of lease versus purchase alternatives to determine the most economical approach.
- (b) FTA Circular 5010.1C, *Grant Management Guidelines*, Chapter II-3(d) *Leasing-Out Agreements*. These guidelines contain several requirements which grantees must incorporate in their lease agreements.
- (c) FTA Master Agreement MA(12), Section 16, *Leases*.
- (d) Capital Leases (49 CFR Part 639).

DISCUSSION

Since equipment leases are considered "third party contracts" within the meaning of FTA Circular 4220.1E, the requirements of that Circular apply to such procurements. FTA Circular 4220.1E requires a lease versus purchase analysis to determine the most economical approach to any given procurement. FTA Circular 5010.1C, Chapter II-3(d),

deals with maintenance requirements under leases. The FTA Master Agreement references regulations dealing with Capital Leases (49 CFR Part 639).

Lease vs. purchase alternatives - It is usually less economical to lease equipment than to purchase it. However, there are some instances where this is not true. For example, short-term leases of equipment which is required for a short time or for a unique task may be reasonable and economically sound. It may also be advisable to lease equipment that undergoes rapid technological change such as personal computers and other IT related equipment. In some cases, it is easier to have equipment maintained if it is leased. But long term leases and leases for items that should be purchased and capitalized but cannot be because of budget constraints are not economically prudent. If a decision is made to lease equipment, a lease vs. purchase analysis should be made. The analysis should be appropriate to the size and complexity of the procurement. In determining whether the lease of equipment is feasible, the following factors must be considered:

- Estimated length of the period the equipment is required and the amount of time of actual equipment usage;
- Technological obsolescence of the equipment;
- Financial and operating advantages of alternative types and makes of equipment;
- Total rental cost for the estimated period of use;
- Net purchase price, if acquired by purchase;
- Transportation and installation costs;
- Maintenance, storage and other service costs;
- Trade-in or salvage value;
- Imputed interest costs; and
- Availability of a servicing facility especially for highly complex equipment (can the Agency service the equipment if it is purchased).

1.3.3.8 Revenue Contracts

REQUIREMENT
49 CFR Part 18.25 <i>Program Income</i> states that <i>grantees are encouraged to earn income to defray program costs.</i>

FTA Circular 4220.1E *Third Party Contracting Requirements* requires grantees to use competitive selection procedures in the award of revenue contracts.

The FTA Administrator's *Dear Colleague Letter C-98-25*, dated October 1, 1998 defined *revenue contracts* and stipulated requirements regarding competitive selection procedures, five-year term limits (no longer applicable) and requests for waivers.

The FTA *Dear Colleague Letter C-08-02*, dated May 29, 2002 rescinded the requirement that grantees obtain FTA approval for contract terms longer than five years.

DISCUSSION

It is critical to *first determine the primary purpose of the contract*. If it is to procure supplies or services, then it is not a *revenue contract*. For example, management and para-transit contracts are not *revenue contracts* because the primary purpose is to manage a project or operate a service. Royalties received as a by-product of a development or supply contract, e.g. software, would not be considered a *revenue contract*. Disposal of Project property would be another example that would not be considered a *revenue contract*.

If the *primary purpose is to generate revenue* then the contract is a revenue contract. Advertising, concessions (food and news-stands), use of right-of-ways, licenses, and land leasing are some examples of revenue contracts. The definition of a revenue contract developed by FTA is as follows:

A revenue contract is any third party contract whose primary purpose is to either generate revenues in connection with a transit-related activity or to create business opportunities utilizing an FTA-funded asset.

There are three concepts involved in the definition of a revenue contract. First, the objective of revenue contracts is to lower program costs, and thereby reduce both the federal and the grantee's financial contribution. Creative ways of generating these revenues are encouraged, and FTA uses broad latitude in approving them.

Second, revenue generation for the transit agency is a business opportunity for the business community. Such business opportunities can take various forms, such as: advertising, land development, concessions, and utilization of right-of-ways.

Third, an FTA-funded asset is anything that has been purchased, in whole or in part, with FTA funds as part of an approved transportation budget. This can include funds for acquisition, operating expense or maintenance. Grantees must have a detailed familiarity with the approved budgets to know if a particular activity is included and funded by federal funds, in which case it would be governed by federal requirements.

All revenue generated activity involving third-party contracts must follow an important requirement of FTA Circular 4220.1E:

- The *requirement for competitive selection procedures* applies to all business opportunities including all revenue generating contracts.

Competition - The competitive process usually consists of a formal bid or proposal process but it does not always have to. Grantees may use their own judgment about how to meet the intent of the competition requirement, but they must document the record to show how competition requirements were met.

Disadvantaged Business Enterprises - DBEs should have the maximum opportunity to participate in both contracts and subcontracts that use any federal funds. The grantee is responsible for taking all necessary and reasonable steps to ensure that DBEs have maximum opportunity to compete for revenue contracts since these contracts are considered business opportunities.

Contract Term - The five-year contract term limit was rescinded by FTA's Dear Colleague Letter of May 29, 2002. For a discussion of establishing appropriate contract terms, see BPPM Section 2.2.1 - *Contract Period of Performance Limitation*.

Flow-down Requirements - Generally, if federal funds (not assets) are not used to generate revenues, then there are no requirements to include federal clauses in the revenue contract itself.

Unsolicited Proposals - These may come forth when companies see an opportunity to use the transit system (an FTA-funded activity) to enhance their business interest. It may appear from such proposals that no other company could offer the same product or service. However, this does not justify a sole source contract. If the idea or activity is of interest to you, the concept should be evaluated on its own merit and revenue producing potential. If the decision is to implement it, then a competitive process should be used to select the contractor, unless you determine that the proposed concept itself is proprietary.

Best Practices

It is important to always keep in mind the requirement for competition.

The New York City Transit Authority (NYCTA) has experience in many of the areas of revenue generation:

- advertising - buses, trains, stations and other property (billboards), direct advertising on back of MetroCard
- lease/rental of MTA-owned property - concessions, news stands, retail space, subleasing of office space

The NYCTA procurement office does not handle the revenue generation contracts. Various departments of the transit agency are responsible for the revenue contracts, like the Advertising Department and Real Estate Department. These Departments are aware of the federal requirements and follow them to obtain third-party contractors.

NYCTA was approached recently by a company, which submitted an unsolicited proposal, who wanted to install an electronic information system on the subway cars. The company wanted to program the system so that riders would know what was overhead, e.g. Wall Street, theater district. New York City decided to investigate the concept first to determine if it was something that they wanted to do to enhance the subway system. Deciding that they liked the idea, they then prepared an RFP and solicited vendors on a competitive basis.

Metropolitan Atlanta Rapid Transit Authority (MARTA) received an unsolicited proposal from a company about use of subway right-of-way for linking Atlanta with fiber optic cable using MARTA's system-wide conduits. MARTA determined that they had unused conduits and could lease space in them to various telecommunication companies. They contacted the regional FTA office and received their approval for a non-exclusive RFP to seek competitive proposals for twenty-year leases. This has produced successful revenue contracts.¹⁹

1.3.3.9 Transit Oriented Joint Development Projects

REQUIREMENT

FTA Circular 9300.1 *Capital Program: Grant Application Instructions*, Appendix B, "Joint Development Projects."

Federal Register Notice, March 14, 1997, *FTA Policy on Transit Joint Development*. This clarifies the relationship between transit laws and regulations and FTA policy regarding property disposition, leases of property, and sale of property affecting program income and the definition of "highest and best transit use" for joint development.

FTA Circular 5010.1C *Grant Management Guidelines* states:

II-2b. Use - ...FTA encourages incidental uses of real property that can raise additional revenues for the transit system or, at a reasonable cost, enhance system ridership.

FTA approval is required for these incidental uses of real property which must be compatible with the original purposes of the grant.

FTA Circular 4220.1E *Third Party Contracting Requirements* states the requirements the grantee must adhere to in third party contracting. Specifically, note:

¹⁹ - Metropolitan Atlanta Rapid Transit Authority (MARTA), contact Mr. Durham Hamilton, Director of Program Management, at (404) 848-4409, to discuss Atlanta's fiber optic cable contracts.

- Competitive Selection Procedures
- Possible Flow Down of Certain Federal Clauses

DISCUSSION

FTA is encouraging transit systems to undertake transit-oriented joint development projects (TODs) with either new grants or with property acquired under previous grants. The property can be associated with rail, bus or other transit facilities.

The purpose of a joint development project is to:

- secure a revenue stream for the transit system; and,
- help shape the community that is being served by the transit system.

Where the grantee retains effective continuing control for mass transit purposes, all proceeds of sale, lease or other encumbrance of the property will be treated as *program income* for use by the transit system to meet capital and operating needs. The very nature of a joint development project *requires long-term relationships* between the various contracting parties due to issues related to land use, zoning, financial investment, long-term leases, multiple contracting parties, construction, and management. The Federal Register notice of March 14, 1997, clarified and addressed apparent inconsistencies in the use of revenues. This Notice states:

1. Joint development projects are considered “mass transportation projects” eligible for funding under FTA capital programs.
2. All projects must generate a one-time payment or revenue stream for transit use, the present value of which equals or exceeds the fair market value of the property.
3. When the grantee retains continuing control and use of the joint development for mass transportation purposes, all proceeds will be considered *program income*.

Grantees are advised to submit the joint development proposal to the FTA regional office in accordance with the Federal Register notice of March 14, 1997, paragraph entitled “Procedures.” The proposals to FTA should include:

1. The proposed joint development agreement;
2. A market and financial assessment of the joint development project and its impact on the transit system;

3. **A statement of the outcome of planning and coordination between the joint development project and the transit facility; and**
4. **Documentation of the projected benefits for the transit system as well as the effective continuing control of the joint development project for transit purposes.**

Competition is an important requirement in the development of the project. Requirements for full and open competition of the proposed project can be obtained by: public announcements in the newspapers and trade journals; building a solicitation list that is inclusive and not exclusive; developing a realistic response time for developers, knowing that developers have to frequently build a “team” to respond to the RFP; having realistic criteria to judge the responses; having an evaluation team with broad and diverse experience rate the proposals; and, competitive negotiations.

Flow-down requirements dealing with Federal clauses in a joint development project will follow the federal funds. It must be determined whether and to what degree Federal regulations apply, particularly to the privately funded, non-transit portion of the project. These regulations could include: National Environmental Policy Act, Davis-Bacon Act, Buy America Act, labor protection arrangements, and third-party procurement requirements. You should determine (with FTA’s assistance as necessary) the most appropriate procedures for satisfying any flow-down requirements, given the particular circumstances of your project.

Best Practices

Atlanta’s transit system, Metropolitan Atlanta Rapid Transit Authority (MARTA), is involved in a joint development project called the Lindbergh Center. Their objective is to build a village that will: increase ridership, be high-density mixed use, be a livable community, generate long-term revenue, integrate the station and development. They have addressed the issues, been through the procurement process, and selected a developer. How did they do this? They began by working first with their FTA regional office in explaining what they wanted to do. Next, they developed three requests for proposals (RFPs) leading to three contracts for: marketing the property, evaluating the development proposals, and the development itself.

The question of open and full competition was met through the marketing strategy. The marketing plan was critical in reaching out to developers who might bid on the project. MARTA set a target of 500 developers to reach through a variety of methods: a predetermined listing of potential developers, advertising in major newspapers (Wall Street Journal), national and international solicitations. An outside management consulting firm was retained to assist MARTA in the evaluation of developers’ proposals. The Development RFP detailed the requirements of the expected development proposals. Included in the evaluation factors was a

category of “maximize revenues and returns to MARTA.” The process was successfully completed and a developer has been chosen.²⁰

1.3.3.10 Disposition of Surplus

REQUIREMENT
<p>Requirements related to the generation of program income, and the disposition of surplus equipment, supplies and real property may be found in the following regulations:</p> <p>(a) FTA Circular 4220.1E (general principles applicable to all contracts involving Federal funds or Federally funded assets).</p> <p>(b) FTA Master Agreement MA(12), Section 19.g <i>Disposition of Project Property</i>.</p> <p>(c) 49 CFR 18.25 <i>Program Income</i>; 18.31 <i>Real Property</i>; 18.32 <i>Equipment</i>; 18.33 <i>Supplies</i>.</p> <p>(d) FTA Circular 5010.1C, <i>Grant Management Guidelines</i>, Chapter II-2c, <i>Real Property – Disposition</i>; Chapter III-4 <i>Program Income</i>.</p> <p>(e) 49 U.S.C. 5334(g) <i>Transfer of Assets No Longer Needed</i>.</p>

DISCUSSION

FTA interprets Circular 4220.1E as applying to contracts for the disposition of surplus supplies, equipment or property. Grantees are also advised to be familiar with other regulations that specifically address the disposition of property, especially FTA Circular 5010.1C, Chapter II – *Management of Real Property, Equipment and Supplies*.

It is important that the grantee be familiar with the disposition requirements of FTA Circular 5010.1C, Chapter II-2(c) and 3(f). This Circular establishes procedures to be followed by grantees in a variety of situations, and grantees need to carefully review these requirements. They pertain to circumstances such as:

- **Selling property (competitively to the extent practicable) and reimbursing FTA its share of the fair market value.**
- **Selling real property and using the proceeds to reduce the cost of the grant if it is still open or of other FTA funded capital projects.**

²⁰ - Metropolitan Atlanta Rapid Transit Authority (MARTA), contact Ms. Lisa DeGrace, Director of Contracts, Procurement and Materials at (404) 848-5467, to discuss Atlanta’s transit oriented development and other revenue contracts.

- **Retaining title to real property by reimbursing FTA for its share of the current (appraised) market value.**
- **Disposing of rolling stock before the end of service life.**
- **Disposing of equipment,** ²¹
- **Transfer of equipment to a public agency for non-transit use.**
- **Selling and using proceeds for other capital projects.** ²²

Comment [JPL1]: This was pretty confusing as written. If we take away the reference to valuation in the bullet, it makes more sense when explained in the footnote. As an alternative, we could just one bullet for \$5,000 and under and another for \$5,001+.

Transfer of Assets No Longer Needed – 49 USC 5334 (g)(1) allows for the transfer of assets no longer needed by the grantee. If a grantee decides an asset acquired with FTA funds is no longer needed for the purpose for which it was acquired, the grantee may request FTA approval to transfer the asset to a local governmental authority to be used for a public purpose with no further obligation to FTA. The Secretary of Transportation may authorize a transfer for a public purpose other than mass transportation, but only if the Secretary decides -

- A) the asset will remain in public use for at least 5 years after the date the asset is transferred;
- B) there is no purpose eligible for assistance under 49 USC Chapter 53 for which the asset should be used;
- C) the overall benefit of allowing the transfer is greater than the interest of the Government in liquidation and return of the financial interest of the Government in the asset, after considering fair market value and other factors; and
- D) through an appropriate screening or survey process, that there is no interest in acquiring the asset for Government use if the asset is a facility or land.

The decision to permit the transfer must be in writing and include the reasoning that supports the transfer.

Sale of Assets No Longer Needed – 49 USC 5334 (g)(4) allows for the sale of assets no longer needed, subject to the approval of the Secretary of Transportation. When real

²¹ Equipment with a unit market value of \$5,000 or less, or supplies with a total aggregate value of \$5,000 or less, may be retained, sold or otherwise disposed of with no obligation to reimburse FTA, providing useful service life requirements have been met.

²² The situations covered by the Circular include more than those listed above, and grantees need to carefully review the Circular instructions.

property, equipment, or supplies acquired with FTA funds are no longer needed for mass transportation purposes as determined under the applicable assistance agreement, the Secretary may authorize the sale, transfer, or lease of the assets under conditions determined by the Secretary. The net income from asset sales, uses, or leases (including lease renewals) must be used by the grantee to reduce the gross project cost of other capital projects carried out with FTA funds.

Best Practices

One transit agency has developed detailed procedures for disposing of surplus items.²³ These include:

- Competitive bidding procedures for materials that are regularly generated, regularly removed, high volume, and low unit price such as scrap steel or motor oil.
- Development of specifications by the Materials Management Department in coordination with the User Department(s) for the surplus items to be offered for sale and review by the Purchasing Department.
- Preparation of a solicitation and advertising of the items being offered for sale by the Purchasing Department when competitive bids are being solicited.
- Issuance of a "Invitation to Quote" letter to prospective bidders by the Purchasing Department, or a letter inviting "offers to purchase" by the Sales Division when the selling price of the material is expected to be below the small purchase threshold.²⁴
- Analysis of bids by the Purchasing Department, with a written recommendation for award to the winning bidder.
- Internal agency approvals to award a contract for the *sale* of Authority property or services parallels that of the approval process to award a contract for the *procurement* of goods and services.

1.3.3.11 Operating Assistance, Preventive Maintenance, CMAQ and JARC Projects

REQUIREMENT
FTA Circular 4220.1E, paragraph 4, addresses the issue of the Circular's applicability to (a) operating contracts, (b) contracts utilizing Congestion Mitigation and Air Quality (CMAQ) and Job Access/Reverse Commute (JARC) project funds, and (c) preventive maintenance contracts which are funded with FTA formula capital funds:

²³ - New York City Transit. Contact Mike Zacchea, (646) 252-6204.

²⁴ - If the material to be sold does not meet the criteria for competitive bidding, solicitation and advertising of individual items offered for sale would be a responsibility of the Sales Department, not Procurement.

This circular applies to all FTA grantees and subgrantees that contract with outside sources under FTA assistance programs. FTA grant recipients who utilize FTA formula funds for operating assistance are required to follow the requirements of this circular for all operating contracts. These requirements do not apply to procurements undertaken in support of capital projects completely accomplished without FTA funds or to those operating and planning contracts awarded by grantees that do not receive FTA operating and planning assistance.²⁵

Congestion Mitigation and Air Quality (CMAQ) and Job Access/Reverse Commute (JARC) project funds may be used for operations. Although grantees must follow circular requirements for any specific contracts that utilize CMAQ or JARC funds, the use of CMAQ and JARC funds for operations does not trigger the applicability of the circular to all other operating contracts.²⁶

Grantees that utilize formula capital funds for preventive maintenance contracts are subject to the following requirements of the circular: If FTA formula capital funds are fully allocated to discrete preventive maintenance contracts, then the requirements of this circular will apply only to those discrete contracts and must be identified and tracked by the grantee. If the FTA formula funds are not allocated to discrete contracts then all preventive maintenance contracts are subject to the requirements of the circular.²⁷

DISCUSSION

If a transit property receives FTA formula funds for *operating assistance*, all grantee procurements must comply with FTA Circular 4220.1E except for capital projects

²⁵ - As a general rule, the circular, along with the underlying requirements in the Federal transit laws and regulations, applies whenever Federal funds are involved. Those grantees authorized to use formula funds for operating assistance must apply the circular to all operating contracts – even if they are able to administratively segregate the federal funds to non-contract operating expenses. The ability to use formula funds for operating assistance hinges upon a grantee's total operating expenses and the portion of those expenses not offset by operating income. Since the entire range of operating expenses is considered in this calculation, each segment of those operating expenses must be subject to Federal standards. Grantees that are not authorized to use formula funds for operating assistance are not required to apply the circular to their operating contracts.

²⁶ - Congestion Mitigation and Air Quality (CMAQ) and Job Access/Reverse Commute (JARC) funds may be used for operations by all grantees. The circular must be applied to all contracts that are funded, in part, by CMAQ or JARC funds. Using CMAQ or JARC funds for a specific operating contract or contracts does not trigger the requirement to apply the circular to other operating contracts. This is because the calculation required to use formula funds for operations contracts is not required as a prerequisite to using CMAQ or JARC funds for operating contracts.

²⁷ - Grantees who use formula capital funds for preventative maintenance contracts must apply the circular to those contracts. If, through their accounting procedures, these grantees are able to allocate the Federal funds to discrete maintenance contracts, only those discrete contracts must adhere to the circular. If unable to allocate federal funds to discrete maintenance contracts, the circular applies to all maintenance contracts. Capital projects that don't include Federal funding are not required to conform to the circular.

undertaken without Federal funds or those operating and planning contracts awarded by grantees that do not receive FTA operating and planning assistance. Grantees whose net operating deficit is financed by Federal funds cannot segregate any of their operating or planning contracts so that they are exempt from the requirements of the Circular. The Circular must be applied to all such contracts.

When grantees receive *CMAQ and JARC funds* for operations projects, the Circular requirements must be followed for those specific contracts using CMAQ and JARC funds. However, the use of these particular funds for operations does not trigger the applicability of the Circular to all operating contracts, as is the case with FTA formula funds.

1.3.3.12 E-Commerce

REQUIREMENT
FTA Circular 4220.1E, paragraph 7.q. recognizes E-Commerce as an allowable means to conduct procurements. If a grantee chooses to utilize E-Commerce, written procedures must be developed and all requirements for full and open competition must be met.

DISCUSSION

The Best Practices Procurement Manual (BPPM) intends to cover the topic of E-Commerce at a later date when industry experience has been sufficient to indicate some “best practices” for the transit industry. In the meantime, the *Dear Colleague Letter* of May 29, 2002 reminds grantees that E-Commerce is an allowable means to conduct procurements. If a grantee chooses to implement an E-Commerce system, written procedures must be developed and all the requirements of FTA Circular 4220.1E must be met, including the requirement for “full and open competition” as stated in FTA Circular 4220.1E, Paragraph 8a.

Chapter 2

2 - Procurement Planning & Organization

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2.1 ORGANIZATION OF PROCUREMENT FUNCTION

2.1.1 Scope of Responsibility

REQUIREMENT
FTA Circular 4220.1E, paragraph 5a – <i>Grantee Self-Certification</i> , states that FTA intends to rely on grantees' [annual] "self certifications" that their procurement system meets FTA requirements to support the required finding [by FTA] that a grantee has the technical capacity to comply with Federal procurement requirements.
FTA Circular 4220.1E, paragraph 7b – <i>Contract Administration System</i> , requires grantees to maintain a contract administration system that ensures that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders.

DEFINITIONS

Centralize - To concentrate procurement actions and decisions in one person or group within an organization.

Contracting Officer - A procuring official who has delegated authority, usually including authority to sign contracts and amendments on behalf of the procuring agency for one or more specific contracts.

Contracting Officer's Technical Representative (COTR) - A representative of the procuring agency who has more limited authority than the contracting officer, usually including providing technical direction to the contractor.

DISCUSSION

As a Contracting Officer you are responsible both for your contract's cost-effectiveness and its compliance with Federal and state requirements. It is easier to fulfill these responsibilities if most of the decisions and contractual actions concerning procurement are focused in one or more individuals who are familiar with procurement requirements and procedures. These actions begin with planning and solicitation of offers, include communication with offerors and contractors, and continue through contract acceptance and warranty enforcement. Except in very small organizations, the contracting responsibilities will often reside with different individuals than the individuals who would best understand the functional and performance requirements of the goods or services. These latter persons are your internal customers.

Purpose

You and the leadership of your organization need to clearly understand the scope of the procurement function and organize responsibilities to accomplish several objectives:

- to obtain the best buy for your agency which requires an evaluation of all the service quality, safety, cost, schedule, and other objectives of the agency's operating functions;
- to comply with Federal, state, local, and agency procurement requirements;
- to ensure an understanding of the precise authority of you and your agency team members in dealing with suppliers who, while partners in many respects, have some interests that conflict sharply with your agency's; and
- to control through finite, professional boundaries, the possibility of corruption or unethical practices.

These objectives require the clear definition and assignment of procurement responsibilities. A specific aspect of that assignment, the need for autonomy, is discussed in more detail in the following section of the Manual.

Best Practices

Identification of Need - The initial identification of need is one aspect of the procurement cycle that is generally the sole responsibility of your internal customers (i.e., program or technical personnel for whom you are procuring goods or services). However, you may be in a position to facilitate the consolidation of procurements of different internal customers with the same need.

Procurement Planning – Preparation of procurement planning, on the other hand, should be exclusively a procurement function. If your agency has not conducted formal planning, this process is a way to establish the need for a separate procurement function and demonstrate its value to the organization. Specific suggestions for useful planning activities are discussed below under long range and annual planning cycles.

Preparation of Specifications – Preparing specifications or statements of work is usually a customer function. Generally, customers have the greatest understanding of functional and performance requirements; however, the procurement function should play at least an advisory role in order to avoid exclusionary specifications and to encourage free and open competition.

Solicitation of Offers – The solicitation of offers (including invitation for bids and request for proposals) is usually the first important public action the agency takes, and it should clearly be the responsibility at this point of the procurement staff. Customer team members are often helpful in compiling lists of potential offerors, and should participate in the procurement process, but communications with offerors and the official action of soliciting offers is a procurement function.

Communications – If communication with offerors is decentralized, one offeror may obtain more information about the agency's preferences or evaluation process than the others. It is a general practice (except at the smallest agencies) to restrict communication with offerors to only procurement personnel so that no offeror could gain an advantage or apparent advantage over another.

Evaluation of Offers – Procurement personnel will usually request and rely upon their technical customers to evaluate the technical merits of proposals and assess the offeror's ability to perform the contract successfully. The Procurement Officer must oversee the technical evaluation to ensure it is consistent with the evaluation criteria published in the RFP and that the contract file is adequately documented to reflect the relative strengths, deficiencies, weaknesses and risks of the various proposals. It is important that the technical evaluation provide a clear narrative of the proposals' relative merits and not merely a numerical rating of the proposals. To maintain the overall integrity of the procurement, the procurement function normally must at least approve the selection and (if it does not have sufficient authority) will often present the recommendation to the final authority.

Administration – You should play a continuing role in the administration of the contracts, particularly in changes and disputes. Acceptance of goods and services and payment approvals always require your review. In simpler or routine situations, a receiving report or COTR acceptance can be matched to your original purchase order to ensure proper control.

Centralization / Decentralization – Many organizations find it more efficient to permit customer groups, particularly those with a large number of similar, small procurements, to perform some of the functions normally performed by the procurement office (e.g., solicitation and evaluation

of offers up to a specific dollar amount). However, in these cases, procurement personnel can provide a valuable oversight role, providing forms, procedures, and technical assistance. Although decentralized procurement can reduce the administrative cost of the procurement and be more responsive to a customers' needs, if it is uncontrolled, it could eventually result in situations involving non-compliance, unwise contracting, or unethical practices. It is a best practice to ensure that no employee undertakes any of the procurement functions without clear authority and guidelines.

2.1.2 Autonomy

DISCUSSION

Autonomy of the procurement function, or its independence from internal customers, is important to carrying out procurement responsibilities without undue influence by the customers and users of the goods and services procured. While the degree of autonomy and organizational reporting relationships will vary with the size of the organization and its policies, autonomy enables procurement personnel to give unbiased consideration to procurement principles and requirements, as well as to the schedule, budget, functional and other requirements of the internal customers.

Purpose

A debate has raged for years between those who are process oriented (procurement officials and compliance departments such as legal, internal audit, or grants) and those who are program oriented (maintenance managers, engineers, project managers).

- Should the procurement functions described in the previous section be controlled by the program functions? After all, it is the program office whose needs are to be met, and, in most accounting systems, the program to whose budget the purchase will be charged.
- Should the procurement official be entirely autonomous and evaluate the needs of the program (e.g., for immediate services) against the legal or procedural requirements of the funding source (e.g., FTA Circular 4220.1E if Federal funds)?

Some degree of autonomy of the procurement function is necessary organizationally and functionally so that procurement personnel will be free from undue influence or pressure in the award and administration of contracts. The obvious solution to the conflict between "process" and "program" is to have a team in which each member recognizes the strengths and capabilities of the other team members and appreciates the role each side brings to the contract table. This

sounds easy to accomplish but, in most practical situations, is very difficult to achieve.¹ Failure to achieve unity and teamwork within the agency in the awarding and administration of public contracts creates frequent opportunities for a contractor to take advantage of a contentious staff relationship to its financial advantage (and the agency's financial disadvantage). Achieving proper balance between groups requires delicate balancing of personalities and corporate objectives, a strong executive, and a well-trained staff. It must also be recognized that there is no textbook answer that will work in every situation and in every agency.

In addition to balancing the roles of program and process interests in making procurement decisions, the payment of your agency's funds to contractors generally requires three independent concurring actions. The requirement for independent concurring actions is sometimes called "internal control," as it is a method for the agency to control the propriety of its actions internally, rather than requiring external reviews and control. While best practices differ, all authorities recognize a fundamental need for a system of checks and balances in the overall procurement process. In an organization with no checks and balances, if an individual perceived a need for a staff car, that person could draft the specifications for the car, prepare the solicitation document, order the car, approve the contract, inspect the preparation of the car, administer the contract, accept the car after delivery, sign the agency check to pay the dealer, and use the car in a manner the person deemed appropriate. It should be obvious that an organization and procurement process such as this would not be credible and would be subject to great abuse, actual or perceived. As a result, most public and private agencies divide those functions among, at least, three distinct elements within its organization.

- The requiring activity is represented by the program manager who is responsible for determining the requirement, preparing the specifications and, then, acting as the technical representative or advisor to the contracting officer during contract performance.
- The procurement activity is represented by the contracting officer who is responsible for ensuring specifications are not restrictive, preparing the solicitation document in accordance with the law and rules and regulations of the agency and the FTA, soliciting the requirement, and awarding the contract in accordance with the solicitation. Contract administration functions are usually shared with the requiring activity and involve such functions as approving payment, accepting the goods or services bought, and closing out the contract.

¹ - For formal assistance in implementing a team process see Howard, Jennifer M. and Miller, Lawrence M., *Team Management: Creating Systems and Skills for a Team-Based Organization* (The Miller Consulting Group, Inc., 1994) or Leinberger Robin et al, *The Art of Business Process Management: A guidebook*, (KPMG Peat Marwick, LLP, 1993).

- The payment activity is represented by a third party (the finance department) who ensures that all approvals are obtained and that the payment is within the dollar amount of the contract. Often, the accounts payable function in finance either physically or electronically matches three documents issued by three different employees (the purchase order, receiving report, and approved invoice) before releasing funds.

The procurement and payment activities are "process" functions ensuring that the goods are bought and paid for in accordance with the terms of the contract. The "program" activity is to determine what is needed and that it is obtained within the time required and budget allocated.

Best Practices

Degree of Autonomy - From a narrow procurement perspective, the procurement activity would enjoy the highest degree of autonomy where it reports directly to the governing policy board of your organization. Most transit organizations have too much direct operating responsibility to permit this degree of autonomy. Three solutions are:

- Procurement and contracting can report to a chief executive.
- Most typically, the procurement department reports to an administrative or financial function that is independent of the primary internal customers (facility equipment and operating functions).
- Some degree of autonomy can be preserved even within an operating or implementation function if procurement is separated from the program delivery sub-groups.

In medium and large systems, if the contracting function is not separated from the program office, there is an inadequate system of checks and balances on the procurement process. Overall, procurement personnel should have enough autonomy or checks and balances to achieve a quality product at a fair and reasonable price without real or apparent conflicts of interest in the solicitation, evaluation or award.

2.2 LONG TERM PLANNING

DISCUSSION

Long-term procurement planning (i.e., planning more than one year in advance) is one option to be considered by large transit systems and by systems planning a major transit investment, complex capital project, or a substantial number of operating contracts that will span several years. Systems without current major capital projects may find that annual planning is adequate.

Purpose

Procurement plans covering several years may be an improvement over partitioning or consolidation in major projects as a way to facilitate the most cost-effective project management and delivery. The plans can identify major changes in procurement work load, and can obviate any tendency to rush procurement decisions or activities in ways that result in waste (e.g., through failure to consolidate major procurements) or risk non-compliance (e.g., through inadequate notice and non-competitive awards).

Plan Contents - A long-term procurement plan would identify the major procurements projected over the next two to five years. The multi-year element of the Transportation Improvement Program (TIP) is a good starting point for identifying future capital projects and their corresponding procurement requirements. Typically, the procurement plan includes any fixed guideway projects, revenue rolling stock replacements or fleet expansions, and major construction projects. In the case of fixed guideway and other construction projects, where multiple procurements may be involved, the plan would identify the initial strategy for packaging the design, construction, and equipment. Consideration would also be given to turnkey procurements and to long term projects that are not public works. The latter would include major software systems, fleet overhaul and ADA operational service.

Major Projects - Often major design/construction and rail vehicle procurements are planned seven to ten years *in advance of needed completion* because several interdependent contracts may have to be awarded in order to accomplish the project. The time intervals typically required to accomplish these contract awards might include:

- One year advance planning before Request for Proposals (RFP) for the engineering services;
- Four months from RFP to award of the engineering services;
- Two years to prepare technical specifications;
- Three months from completion of specifications to system RFP;
- Six months from system RFP to award; and
- Three years for system construction.

The planning and design processes can change this schedule significantly, and few procurements require this length of time. When major projects are undertaken, a comprehensive procurement plan that outlines these major projects along with the rest of your procurement workload will be extremely helpful. Bus procurements and major electronic/data systems generally require at least three years of advance planning.

2.2.1 Contract Period of Performance Limitation

REQUIREMENT

49 USC § 5326(b) limits the procurement of rolling stock and replacement parts to no more than five years' requirements under a single contract, even though delivery may take place beyond five years from the date of the initial contract.

FTA Circular 4220.1E, paragraph 7.m, addresses the five-year contract term limitation for rolling stock and replacement parts. It also requires that contract terms for all other types of contracts be based on sound business judgment.

FTA Circular 4220.1E, paragraph 8 – *Competition*, requires all procurement transactions to be conducted in a manner providing for full and open competition.

FTA Circular 4220.1E, paragraph 7i – *Written Record of Procurement History*, requires grantees to maintain records detailing the history of a procurement.

DISCUSSION

On May 29, 2002, the FTA Administrator issued *Dear Colleague Letter C-08-02* rescinding FTA's long-standing five-year contract term limitation for all contracts except those for rolling stock and replacement parts. The limitation on rolling stock and replacement parts remains in effect since the limitation is a statutory requirement and not an FTA policy.² The new FTA policy is now expressed in FTA Circular 4220.1E, paragraph 7.m – *Contract Term Limitation*.

Prior to this letter, FTA Circular 4220.1D, paragraph 7.m - *Contract Period of Performance Limitation*, had limited the period of performance of DOT-assisted supply and service contracts to five years, inclusive of options, without prior FTA approval.³ As a result of this rescission of the contract term limitation, grantees will no longer be required to obtain prior FTA approval for contract terms longer than five years.⁴ The rescission of the five-year term limit applies not only to new contract awards, but to existing contracts as well. Grantee procurements will continue to be reviewed by FTA for compliance with the "full

² - The limitation is expressed in terms of buying no more than five years' requirements even though delivery may occur beyond five years from the date of the contract.

³ This limitation did not apply to construction contracts or to leases of real property for the life of the transit asset to be constructed on such property.

⁴ FTA *Dear Colleague Letter C-08-02* dated May 29, 2002.

and open competition” principle stated in FTA Circular 4220.1E paragraph 8a, and grantees will continue to be responsible for conducting their procurements in accordance with sound business practices. Grantees are expected to be judicious in establishing and extending their contract terms.

Best Practices

Although FTA no longer requires prior approval for contract terms longer than five years, grantees remain responsible for conducting their procurement transactions in accordance with the “full and open competition” principle expressed in FTA Circular 4220.1E, paragraph 8a. As with any procurement action, grantees should ensure that their procurement files adequately document their decision making process. This record should include the rationale for the contract period of performance.

Period of Performance Criteria – Periodic re-competition of contracts preserves competition and keeps prices competitive. Without periodic competition the incumbent will not have the pressures of a competitive market to keep prices reasonable or an incentive to maintain satisfactory performance. There are, however, criteria that the grantee can employ when deciding upon the term of a contract. Some of these criteria are suggested below.

Revenue Contracts – It is FTA policy to afford all persons an equal opportunity to access FTA-funded assets. FTA also encourages its recipients to maximize non-farebox revenues. This can be done through contractual or other appropriate arrangements, which involve the use of FTA-funded assets without interfering with its transit use. FTA had previously invoked a five-year term limit as one way to balance these potentially conflicting policies. It is important for grantees to document their revenue contract files with an *economic analysis* that demonstrates how these dual objectives were accomplished. If the contract opportunities allow for free and open competition, then the Grantee’s procurement policies will address FTA’s equal opportunity policy. Where however, there is a limit to the number of firms who will be awarded contracts, then the grantee should include an *economic analysis* in the contract file to justify the contract term. The *economic analysis* should explain why the specific period of performance was necessary for the recovery of the contractor’s investment and a reasonable economic return. In performing this analysis, grantees may wish to conduct a market survey to obtain information and recommendations from prospective offerors to determine what the typical up-front investment will be and what kind of contract period would be required for the offerors to recover that investment and realize a reasonable economic return on that investment. Grantees should document their files with this information, showing the conclusions reached with respect to the contract period of performance finally selected.

Supplies – Typically the contract period of performance for supplies will be dictated by the grantee’s foreseeable needs and such factors as economic quantity breaks, warehousing space, shelf life, technology concerns, etc. When the grantee perceives that there may be an opportunity to increase competition through a larger purchase, the grantee may wish to conduct a *market*

survey of potential suppliers to determine if they would make an offer under a different contracting scenario. For example, it may be that they were discouraged from bidding because the up-front investment (non-recurring costs of tooling, etc.) would be prohibitive over a relatively short contract period/limited quantity buy. However, if the period were extended and the quantity increased, these potential suppliers might be induced to participate. This is in effect what one large transit agency has done successfully.⁵ Thus, the shortest contract period/minimum quantity buy may not necessarily be the optimum decision. Grantees will need to exercise some diligence in determining if longer/larger contracts might be in their best interests. If they decide to do that, they should document their files showing the benefits obtained from the longer contract periods.

When deciding the best period of performance for on-going services contracts, grantees need to consider the up-front investment by potential offerors for specialized personnel training and other non-recurring start-up costs (e.g., relocation) that must be recovered over the life of the contract. Once again, grantees should consider a pre-solicitation industry outreach to discuss with individuals in the industry what they may see as up-front investments that must be recovered from the profits anticipated by the contract. These discussions should reveal what the industry needs in terms of a contract life in order to submit competitive prices against the incumbent. These facts need to be documented in your contract files as you reach an agency decision on the proper period of performance of the services contract.

2.2.2 Multi-Year vs. Multiple Year Contracting

DISCUSSION

Grantees are authorized to procure rolling stock or other supplies and services by a number of methods. These include buying on an annual or on an as-needed basis, and also on a multi-year or multiple-year basis. The distinction between the multi-year and multiple year methods is as follows:

Multi-Year Contracting - multi-year contracting is a method by which the grantee procures its needs for the entire life of the contract, even though funding for the entire contract is not available at the time of contract award. The contract requires the contractor to deliver the entire requirements of the contract. Option provisions are unnecessary. Because the grantee does not have sufficient funds for the entire contract at the outset of the contract, it will be necessary to recognize in the contract that the grantee may have to cancel the contract at some point if additional funds are not forthcoming. Grantees may have to include cancellation costs in the contract in the form of an advance agreement for any program year or portion thereof canceled by the grantee (but

⁵ - Contact Mr. John Trotta, Vice President, Purchasing/Warehousing, Chicago Transit Authority, at (312) 222-6113.

cancellation costs are not required to be included if the contractor will accept a contract without them). Additional information on multi-year contracting, while not binding on grantees, is discussed in the *Federal Acquisition Regulation (FAR)*, Subpart 17.1 - *Multi-Year Contracting*.

Multiple Year Contracting - multiple year contracting is a method by which the grantee awards a contract for a base period of one or more years, with option provisions for future years' requirements. The base period of the contract is a firm and fully funded requirement. Beyond the base period, the grantee uses option provisions, which may be exercised unilaterally at the discretion of the grantee as additional funding becomes available. There is no need for the inclusion of cancellation payments since the exercise of the options is totally within the discretion of the grantee.

Additional information on multiple year contracting, while not binding on grantees, is discussed in the *Federal Acquisition Regulation (FAR)*, Subpart 17.2 - *Options*.

Term of Contracts – As noted above in Section 2.2.1 – *Contract Period of Performance Limitation*, 49 USC § 5326(b) limits the procurement of rolling stock and replacement parts to no more than five years under a single contract, even though delivery may take place beyond five years from the date of the initial contract.

2.3 ANNUAL PLANNING

2.3.1 Sources and Contents

DISCUSSION

Every transit organization can carry out annual planning; large systems may maintain multi-step planning processes with substantive documents that are carried forward from year to year. Small systems may prepare the plan simply through preparation of a list of known procurements at the beginning of a planning cycle (i.e., in budget preparation or in the mandated planning process).

Purpose

A basic purpose for maintaining formal plans regarding procurements well in advance of issuing the solicitations is to enable more deliberate and coordinated decision-making in moving forward with the procurements and related activities. In addition, procurement planning is the best opportunity to identify potential consolidation of procurements (e.g., several internal customers purchasing furniture or personal computers in the same time-frame). Larger agencies may find that procurement consolidation yields substantial savings. More specifically, an advance procurement plan is a good way for the agency to document its compliance with paragraph 7(d) of Circular 4220.1E which states, "Grantee procedures shall provide for review of proposed

procurements to avoid purchase of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase."

The advance procurement plan also proves useful in responding to procurement challenges. It provides an early record of decisions that were made for business purposes before the receipt of offers and without the possibility of competitive bias. Contracting officials should recognize that the plan is fluid and that their customers' needs will change, but even this change can be more orderly if the base plan has been documented. A change is simply accomplished through a plan update, rather than being passed around by word of mouth or memorandum, which tends to result in confusion and indecision.

Best Practices

Sources for Plans - The preparation of an advance procurement plan can begin with data already prepared for service and financial planning purposes. Both state and local Transportation Improvement Programs list major Federally funded projects for all modes of transportation. While the preparation of the plans is the responsibility of the local Metropolitan Planning Organization and the state, most transit agencies are involved in assisting with development of the transit element of the plans, which lists their projects separately. An internal capital budget is another source, which may have more detailed or up-to-date information on planned capital procurements.

Although projects funded with operating funds are often smaller and the operating budget does not usually offer as much specificity, contracting officials may be able to identify many planned procurements from the operating budget as well. Historical usage is another valuable source for the plan, particularly when compared to the operating budget.

Another method available to assist with preparation of the plan is to conduct a survey of internal customers. They may provide more detail on the budgeted projects and may be able to identify projects that are not differentiated in the budget. An annual survey of the major customers will encourage the customers themselves to plan their needs for goods and services.

Annual procurements, which account for a great deal of activity, such as parts, fuel, and other supplies, can be projected at most agencies based on historical need and agency-wide plans and projects.

Plan Contents - In addition to the identity of each procurement, plans normally identify the customer contact(s) (at medium and large agencies), time requirements, and funding sources. Tentative start dates, publication dates, opening dates and award dates are usually based on the type and size of the procurement contemplated. Time should be allowed for:

- preparation of a source selection plan (if not already complete or in progress), where appropriate;

- preparation of specifications;
- assembly of the solicitation of offers;
- publication period and time for preparation of offers, including pre-bid/proposal conference, where appropriate;
- receipt and evaluation of offers; and
- required reviews and approval actions.

Complex projects will require more time for preparing specifications. Negotiated procurements will require more time after receipt of offers. If governing board approval is required, and the governing board meets on a fixed schedule, time would be added for this step. In all major procurements and cases where negotiated procurement is utilized, the planning process can evolve into a source selection plan for each procurement.

In the case of procurement of complex systems, such as rail transit systems or advanced rail vehicles, an advanced procurement plan concept includes planning, not only for the prototype development, testing, and acceptance of the system, but also the life cycle support of the system, which includes training of maintenance personnel, maintenance infrastructure, such as electronic design diagrams and parts catalogs, long term availability of parts, and technical support.

2.3.2 Independent Grantee Cost Estimate

REQUIREMENT
FTA Circular 4220.1E, Paragraph 10 provides that grantees must perform a cost or price analysis in connection with every procurement action, including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, grantees must make independent estimates before receiving bids or proposals.

DISCUSSION

A logical element of your annual procurement plan is a cost estimate for each major procurement. It is normally cost-effective to have an independent cost estimate that also satisfies the Federal requirement and to have such an estimate at some time before receiving bids or proposals. You may obtain such estimates from published competitive prices, results of competitive procurements, or estimates by in-house or outside estimators.

BPPM Appendix B.20 – *Independent Cost Estimate Form*, provides a format and guidance for grantee in-house estimators that should be helpful. This form was developed by one

transit agency to assist its user organizations with the development of independent cost estimates and statements of work.**Purpose**

The following are purposes of establishing a cost estimate using a method independent from the prospective offerors in advance of the offer:

- it ensures a clear basis for the grantee's determination that the benefits of the procurement warrant its cost;
- it provides essential procurement and financial planning information (see "Advance Procurement Plan," above); and
- it provides a basis for price analysis, which may assist in obviating the need for a more burdensome cost analysis.

Although it may seem self-evident that the agency has at least implicitly prepared a cost estimate in deciding to proceed with a procurement, many projects can change in scope without clear communication among the people responsible. For example, a management information system for parts inventory control may seem cost-effective, but may grow during discussions to include unanticipated electronic imaging, scanning of repair manual diagrams, unanticipated distributed processing devices, and multi-user programming. An independent cost estimate prepared when the agency first undertook the project could alert all involved that the project had grown beyond the scope originally intended. A deliberate decision to reduce the scope or revise the cost estimate can be made at each step of the project's development.

The cost estimate is essential information for procurement planning. It gives the contracting official some indication of the complexity of the project and the degree of investment that offerors will want to make in the procurement process, thus allowing planning of procurement time and personnel. It is also the basis for determining which procurement procedures apply to the project. If the cost estimate exceeds \$100,000, for example, a competitive solicitation is normally required. (State or local requirements may be stricter.) Similarly, certification and bonding requirements imposed by Federal regulations are triggered based on the value of the contract. (See "Methods of Procurement" FTA Circular 4220.1E, § 9; "Bonding Requirements," § 11; "Buy America" Master Agreement § 14 (a); "Debarment and Suspension" Master Agreement § 3 b.) However, the application of these and most other requirements depends not on the cost estimate, but on the contract amount.

A final purpose of the independent cost estimate is for price analysis. Either a cost or price analysis is required for every contract and every change order so that the essential objective of a reasonable price is assured. The adequacy of the price or cost analysis is a critical responsibility of the contracting official. In many contract awards the bids alone may be adequate to assure a

reasonable price. However, in all negotiated procurements, most contract changes, sealed bids where price competition was not sufficient, and non-competitive awards, further analysis is required. An independent cost estimate prepared before receipt of offers is invaluable in these circumstances. The estimate alone may, if prepared with sufficient detail and reliability in the contracting official's judgment, be sufficient to determine whether the price is reasonable. It will at least supplement other pricing data in making the determination. Because cost analysis can be time consuming, expensive, and raise disputes, the availability of an independent pre-bid estimate, which allows for price analysis and obviates cost analysis, is worth material pre-bid effort.

In these circumstances, it is essential that the grantee's cost estimate be developed independently from the offerors' pricing submissions. If a bus purchase is being prepared, for example, the prospective offerors should not be relied upon for the independent cost estimate, except in the form of prior bids submitted with adequate competition.

Any price analysis or data collection performed after receipt of the offers, in addition to consuming valuable time during the limited validity of the offers, will not be as probative as data collected before the receipt of the offers. An independent cost estimate prepared before the receipt of the offers does not raise the question of whether the particular data and analysis was consciously or unconsciously intended to justify the award.

Best Practices

Construction - In some cases, cost estimates may be difficult to obtain or may lie outside the competence of agency personnel. In the case of construction projects, a design firm may already be under contract and may perform this service. In some cases, the agency's in-house personnel who have participated in design or past construction efforts may be the most professional and reliable cost estimators.

Supplies and Equipment - Equipment estimates can often be prepared from published price lists or from past competitive procurements updated with inflation factors. Grantees may find relevant pricing data by contacting other agencies that obtained competitive bids for the same equipment or supplies. In the case of specialized equipment, care must be taken that the source of the estimates is not disproportionately obtained from one supplier.

Services - Professional services often range widely in both price and quality, and are often being acquired precisely because the agency personnel are unfamiliar with the subject matter. Therefore, your in-house personnel may not be qualified to estimate the cost of a major professional service contract. In these cases, it may be worth obtaining a professional cost estimate by a firm not interested in the final procurement. Other grantees are a valuable source of cost estimating information if they have undertaken similar projects. The contracting official should obtain and, when appropriate, update the independent cost estimate in the manner best suited to the circumstances of the particular procurement. Because reasonable price is a key objective of every procurement, and is also a critical Federal interest in Federally funded

procurements, an independent cost estimate should be prepared for every action before offers are received.

2.4 SOURCE SELECTION PLAN

2.4.1 File Documentation

REQUIREMENT
<p>FTA Circular 4220.1E, Paragraph 7.i - <i>Written Record of Procurement History</i> requires grantees to maintain records detailing the history of a procurement. As a minimum, these records shall include:</p> <ul style="list-style-type: none">• The rationale for the method of procurement;• Selection of contract type;• Reasons for contractor selection or rejection; and• The basis for the contract price.

DISCUSSION

A properly documented procurement file provides an audit trail from the initiation of the acquisition process to the beginning of the contract. The file provides the complete background, including the basis for the decisions at each step in the acquisition process. A well-documented file speaks for itself, without need of interpretation from the contract administrator. A well-documented file also supports actions taken, provides information for reviews and investigations, and furnishes essential facts in the event of litigation or legislative inquiries.

Purpose

Documents recording the key steps in each procurement are important for a number of reasons, including the following:

- You are taking legally and financially significant actions on behalf of your agency and the public. Information relating to these actions needs to be readily retrievable in the event that contract personnel are personally unavailable or their memory is not precise enough to assist the agency in moving forward with the administration of its program. You may routinely expect your colleagues to take actions based on the file.
- The key steps in a procurement, including those listed under "Requirement," above, are frequently material elements in financial (e.g., payment or withholding) determinations or legal disputes. Written documentation will have great value to your agency under those circumstances.

- The agency's process may be reviewed, audited, and/or may be the subject of in-depth investigation. This documentation is the history of the public procurement. Many hours of reconstructing events and decisions, stretching memories, and evaluating scenarios can be saved with a concise file that factually answers the questions typically raised.
- Finally, you reduce the likelihood of additional supervision or burdensome restrictions being placed on your agency or your procurement process with concise documentation of the decisions you are making.

Many procurement reviews, while finding few problems with the underlying decisions or procurement results, may reach negative conclusions and make unwanted recommendations simply because well considered decisions were not well documented. Noting briefly why you did what you did may help you and your agency, as well as satisfy the requirements of the "Third Party Contracting Requirements" Circular.

Best Practices

Where appropriate, the procurement documentation file should contain:

- Purchase request, acquisition planning information, and other pre-solicitation documents;
- Evidence of availability of funds;
- Rationale for the method of procurement (negotiations, formal advertising);
- List of sources solicited;
- Independent cost estimate;
- Statement of work/scope of services;
- Copies of published notices of proposed contract action;
- Copy of the solicitation, all addenda, and all amendments;
- Liquidated damages determination;
- An abstract of each offer or quote;
- Contractor's contingent fee representation and other certifications and representations;
- Source selection documentation;
- Contracting Officer's determination of contractor responsiveness and responsibility;
- Cost or pricing data;

- Determination that price is fair and reasonable including an analysis of the cost and price data, required internal approvals for award;
- Notice of award;
- Notice to unsuccessful bidders or offerors and record of any debriefing;
- Record of any protest;
- Bid, Performance, Payment, or other bond documents, and notices to sureties;
- Required insurance documents, if any; and
- Notice to proceed.

Purchase order forms (electronic or manual) and standard files for small purchases can be designed to make the recording of most of the relevant data for small purchases automatic. Bid and proposal files, particularly if you use sealed bids under \$100,000 can also be standardized to facilitate recording the appropriate data. For larger procurements, there are often memoranda or correspondence that, if assembled in the file, address many of the key issues.

The procurement file and the contract administration file can be coordinated by standard practice, so that nothing between bid opening (or proposal receipt) and notice of award is omitted.

2.4.2 Full and Open Competition

2.4.2.1 Full and Open Competition Principle

REQUIREMENT

FTA Circular 4220.1E, Paragraph 8.a requires all procurements to be conducted in a manner providing full and open competition. This requirement finds its way into Paragraph 9.h of the Circular which limits the use of noncompetitive contract awards to those situations when the award of a contract is infeasible under small purchase procedures, sealed bids, or competitive proposals and at least one of several specifically named circumstances are present. Thus, contracts with a value of more than \$100,000 shall be awarded by sealed bid or competitive negotiation unless there is an explicit exception.

FTA Circular 4220.1E, Paragraph 8.a considers the following practices to be restrictive of competition:

- Unreasonable requirements placed on firms in order for them to qualify to do business;
- Unnecessary experience and excessive bonding requirements;
- Noncompetitive pricing practices between firms or between affiliated companies;

- Noncompetitive awards to any person or firm on retainer contracts;
- Restrictive use of brand names;
- Any arbitrary action in the procurement process; and
- Geographic preferences ⁶

DEFINITIONS

Competition - The process by which two or more vendors attempt to secure the business of a third party by the most favorable price, quality, and service.

Exclusionary - Tending to limit competition for reasons other than business or bona fide policy goals, such as price, quality, and service.

DISCUSSION

Full and open competition is the guiding principle of procurement requirements and practices. You constantly seek to permit and encourage meaningful interest and offers from all entities. Your practices should be selective or rule out offerors only for business reasons (cost, quality, and delivery). Because it is often easier not to accommodate a potential new offeror, and easier to deal with fewer entities, you must vigilantly cultivate ways to increase competition at reasonable expense.

Purpose

The principle of full and open competition has one primary and two secondary purposes. The primary purpose is to obtain the best quality and service at minimum cost. In other words, to get the best buy. The secondary purposes are to guard against favoritism and profiteering at public expense, and to provide equal opportunities to participate in public business to every potential offeror.

Best Buy - The primary purpose of free and open competition is to obtain for your customers (and the passengers, funding partners, and local community or other vested interest) the optimum combination of cost with goods and services. The most cost-effective procurement, the greatest value, and the best buy are all related terms. The premise is that suppliers competing with each other will make efforts to optimize the price and quality for you, even though it minimizes their profit percentage.

⁶ - Geographic preference is permitted in certain narrow situations, including principally where part of a legal licensing requirement and for architects and engineers; FTA Circular 4220.1E § 8.b.

A countervailing view is that having to compete increases the cost of the goods and services. Some offerors will state, "If I can have a sole source contract, I can hold the cost down for you." This is a short-term perspective that is destructive in the long run. Even if a lower price can be obtained in isolated circumstances, the odds are that in most cases you can obtain a better buy through open competition. As in all procurement practices, you can also benefit in the long run from establishing a highly consistent expectation on the part of your suppliers; they will compete more cost-effectively and with less difficulty, if they are confident that free and open competition is your consistent practice. To succeed, you should diligently root out the tendency to pursue false, short-term economies of limiting competition in favor of free and open competition.

A provocative assertion is that, "A unique characteristic of good public purchasing is the underlying principle that more importance is ultimately attached to the ways and means of obtaining prices than to prices themselves."⁷ Whether this is true or whether the best buy is more important than the means of procurement, it is certainly true that you may be the voice in your transit system for protecting procurement principles, particularly the principle of free and open competition, against the occasional short-sighted views of your customers.

Favoritism and Profiteering - The concern that suppliers or public agents may profit unjustly at public expense through poor procurement practices is a constant theme in the history of government procurement. While eliminating unjust gains does serve to achieve the best price, the acute concern that suppliers or public officials may exploit public procurements for their own gain at public expense is of great significance and plays a major role in the public's overall confidence in a transit operating entity.

Offerors' Opportunity - Scrupulously fair treatment of all offerors will foster the most satisfactory relations with the offerors in the long run. Similarly, a firm expectation of free and open competition is generally valued by the supplier community. However, there can be circumstances where a supplier's right to participate is at odds with the procuring agency's interest in the best buy. Examine the case of failure of a delivery agency or the postal service to deliver a proposal document. Although missing the proposal deadline was not the fault of the proposer, its right to participate in public business does not prevail over the procuring agency's interest in proceeding with public business. Indeed, in some jurisdictions, a disappointed bidder has no standing to enforce the competitive procurement laws. However, to the extent Federal precedents apply to your procurement, your offerors have an implied contract of fair-dealing during the procurement process.⁸ So while your primary goal is the best buy, and an offeror may have no vested right to participate nor vested profit interest in the possibility of

⁷ - The Council of State Governments, National Association of State Purchasing Officials, Law Enforcement Assistance Administration, and Peat Marwick Mitchell & Co., *State and Local Government Purchasing* (1975) p. 6.2.

⁸ - *United States v. John C. Grimberg Co.*, 702 F.2d 1362, 1367 (Fed. Cir. 1983) (in banc).

participating, the offeror does have a right to fair dealing during the solicitation and selection process. To the extent that it is not inconsistent with the best buy, you will want to treat all potential offerors as fairly as possible.

Best Practices

The following are illustrative of practices you can undertake to advance competition.

Partner Information - You can undertake outreach programs with your supplier partners by preparing brochures that give background information about your agency and contain assistance in the most practical ways to identify opportunities to do business with your agency.

Partner Treatment - You can establish an ethic in your organization of treating suppliers as partners in the delivery of transit service. Everything from the telephone manner of agency staff to the consideration shown in arranging conferences and presentations can contribute to an increase in competition.

Advertisement - A traditional practice to increase competition, and still one of the most meaningful, is widespread advertising to the extent practical. Developing economical means to widen access to your procurement advertisements, such as use of the internet and private bid room services, is an area worthy of continual review and effort.

2.4.2.2 Restraints on Competition

2.4.2.2.1 Brand Names

REQUIREMENT
<p>FTA Circular 4220.1E Paragraph 8.a. requires:</p> <p>"All procurement transactions will be conducted in a manner providing full and open competition. Some of the situations considered to be restrictive of competition include, but are not limited to . . . Specifying only a 'brand name' product instead of allowing 'an equal' product to be offered without listing its salient characteristics."</p> <p>Paragraph 8.c. requires:</p> <p>"...All solicitations shall:</p> <p>(1) Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured. Such description shall not, in competitive procurements, contain features that unduly restrict competition....</p> <p>... When it is impractical or uneconomical to make a clear and accurate description of the technical requirements, a 'brand name or equal' description may be used as a</p>

means to define the performance or other salient characteristics of a procurement. The specific features of the named brand which must be met by offerors shall be clearly stated.”

DEFINITIONS

Approved Equal - An item or service which has been approved by the procuring agency as equal to the brand name item originally specified.

Salient Characteristics - Those qualities of an item that are essential to ensure that the intended use of the item can be satisfactorily realized. The term is mainly used in connection with a brand-name-or-equal description, which should set forth those salient physical, functional, or other characteristics of the referenced product that an equal product must have in order to meet the Authority's needs.

Brand Name - A name of a product or service that is limited to the product or service produced or controlled by one private entity or by a closed group of private entities. Brand names may include trademarks, manufacturer names, or model names or numbers that are associated with only one manufacturer.

Design Specifications - Specifications based on the design of a product or service. Typical design specifications may include dimensions, materials used, commonly and competitively available components, and non-proprietary methods of manufacturing.

Performance Specifications - Specifications based on the function and performance of a product or service under specified conditions, preferably conditions that can be reproduced for testing purposes. Performance specifications may include useful life, reliability in terms of average intervals between failure, and capacity.

DISCUSSION

Brand names (e.g. "Motorola Metrocom," "Webasto Heater") are among the most restrictive types of specification. Design and performance specifications are the preferred alternatives. However, in some cases using sealed bids, you may not be able to ensure you will receive an acceptable product without mentioning a brand name. (In negotiated procurements this is less often necessary because a performance or design specification can be used and the proposed brands can be reviewed during negotiations.) If you must use a brand name in your specification, you can still allow bidders to substitute an equal product with a different brand name. You may reserve the right to determine whether a particular brand or model is equal to the one you specified. If you use a brand name and allow equal brands, you must also specify the salient characteristics of the specified brand that will be among the criteria used in determining whether a suggested substitute is equal to the specified brand or not.

If a grantee believes that a specific brand name must be used in a specification and that it cannot accept any alternative product; i.e., it cannot allow a vendor to propose “an equal” product, the grantee must process this as a sole source (non-competitive) procurement action through the proper approving officials within the grantee’s organization prior to release of the solicitation.

Purpose

The restriction on brand names serves the central purpose of maximizing free and open competition to obtain the best buy. If you specify a brand name with no opportunity for substitution, the original supplier of the brand name has an effective monopoly. This results in exorbitant prices and cessation of innovation and product development. In complex equipment and construction contracts where a large number of components are specified, the use of brand names can be even more restrictive than in procurement of individual units because the proliferation of brand names discourages the prime contractor from considering substitutes which might contribute to a more cost-effective end product. Therefore, in the long run, you will get the best buy if you avoid the use of brand names as much as possible.

In procuring complex systems, however, such as rolling stock and electronic systems, where reliability or other performance standards are mission critical to your transit service, you and your customers may not be able to specify a component in terms of design or performance and still ensure that your lowest responsive and responsible bidder will offer you a satisfactory component. In these cases, some price and quality competition can be preserved by allowing the substitution of equal items with other brand names. If you are the one who will determine which brand names are equal to the one specified, then you have not sacrificed any control over the quality of the product. This competition by substitution is facilitated by listing the salient characteristics, such as you would use if you used a design or performance specification, (e.g., "10-year life under varying voltage conditions of transit bus electrical systems"), so that bidders will be able to judge which brands may be equal to the specified brand.

Best Practices

Design and Performance Specifications - You can work with your customers to see if brand names can be removed from the specification by substituting design or performance specifications. Like many of the qualities of fully open and competitive procurement practices, this is an effort that may seem over-zealous under the time pressure of a specific procurement, but you can constantly seek to remove restrictions and improve the competitiveness of your procurement processes so that you generally achieve the best buy. If adequate design and performance specifications cannot be prepared, listing several acceptable brand names is far better than specifying just one.

"Or Approved Equal" - Whenever brand names are used, there are several ways you can clarify beyond a doubt that the brand name is used merely as a specification and not as a statement of a preference for the specific product specified. One way is to include a phrase such as "or equal,"

"or approved equal," or "similar in design, construction and performance" with the brand name. Many standard equipment and construction documents also contain a clause in the general provisions that states that even if the phrase "or approved equal" is inadvertently omitted, it is implied after any brand name. If you specify "or equal," you shall clearly set forth those minimum essential characteristics and standards to which the material, product or service must conform if it is to satisfy its intended use.⁹

Some of the onus of restriction is lifted for a large volume of transit procurements by the "Third Party Contracting Requirements" Circular's sanction for noncompetitive procurement of associated capital maintenance items from the original equipment manufacturer. The Circular states:

Procurement by noncompetitive proposals may be used only when the award of a contract is infeasible under small purchase procedures, sealed bids, or competitive proposals and at least one of the following circumstances applies: (e) the item is an associated capital maintenance item as defined in 49 U.S.C. § 5307(a)(1) that is procured directly from the original manufacturer or supplier of the item to be replaced.¹⁰

The Circular requires, however, that "the grantee must first certify in writing to FTA; (a) that such manufacturer or supplier is the only source for such item; and (b) that the price of such item is no higher than the price paid for such item by like customers."¹¹

Approval Process - If you have listed enough salient characteristics and the brand name is an insignificant factor in the overall procurement, you may simplify the procurement by not requiring approval. The contractor would then have the right to substitute a product. The ultimate determination of whether the substitute was equal to the brand specified, if contested, would be through the dispute resolution process culminating in the courts.

The better practice, however, is to provide an approval process, preferably prior to bid opening, so that bidders, in finalizing their bids will be confident about their right to substitute a brand they consider to be more cost-effective than the one specified. This will also give you confidence about the product or service you will receive. (Brand names may be used in competitive negotiation for complex systems, but the approval process need only require approval prior to award rather than at proposal submission. Approval of equal brands is usually simply a part of the discussions or negotiations.) You will want to avoid requiring bidders to wait

⁹ - FTA Circular 4220.1E § 8.c.(1).

¹⁰ - FTA Circular 4220.1E § 9.h.(1).

¹¹ - *Id.*

until after award to obtain approval, because a disapproval at that time may place a bidder (now contractor) in financial jeopardy and may prompt litigation.

If you want to require pre-bid approval, the solicitation can specify a time and format for requesting approval of equal brands. Typically, this is the same time and format used for requesting other changes in the specifications.

Approve requests for substitution whenever you determine that the offered product is equal in all material respects to the products referenced. Offers need not be rejected because of minor differences in design, construction, or features, which do not affect the suitability of the product for its intended use.

Determinations typically identify, or incorporate by reference, identification of the specific products, which the contractor is to furnish. Such identification can include any brand name, make or model number, and descriptive material. You may want to issue your determination, particularly any approval, to all bidders by addendum or as your procedures provide. (In some competitive negotiations where early and open discussion of creative integration of substitute brands is important, issuance of approvals to competing proposers is considered to constitute leveling the playing field, which would discourage open negotiations. You can consider keeping design innovations confidential but issuing approval of equal brand names to all proposers.) As with other substantive addenda to a solicitation, consider extending the bid period if the approvals are issued shortly before the scheduled bid opening, to allow all bidders to take advantage of the information prior to the bid opening.

Even if you have a pre-bid approval process, a contractor can normally request additional approvals after award. Consider clarifying in your solicitation that the contractor who waits until after award proceeds at its own risk.

2.4.2.2.2 Written Standards of Conduct and Conflicts of Interest: Personal and Organizational

Written Standards of Conduct

REQUIREMENT

49 CFR § 18.36(b)(3) establishes for the Department of Transportation the government-wide requirement that state and local government grant recipients must have written standards of conduct for procurement personnel.

Grantees and sub-grantees will maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. No employee, officer or agent of the grantee or sub-grantee shall participate in selection, or in the award or administration of a contract supported by Federal funds if a conflict of interest, real or apparent, would be involved. Such a

conflict would arise when: (i) The employee, officer or agent, (ii) Any member of his immediate family, (iii) His or her partner, or (iv) An organization which employs, or is about to employ, any of the above, has a financial or other interest in the firm selected for award. The grantee's or sub-grantee's officers, employees or agents will neither solicit nor accept gratuities, favors or anything of monetary value from contractors, potential contractors, or parties to sub-agreements. Grantee and sub-grantees may set minimum rules where the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by State or local law or regulations, such standards or conduct will provide for penalties, sanctions, or other disciplinary actions for violations of such standards by the grantee's and sub-grantee's officers, employees, or agents, or by contractors or their agents. The awarding agency may in regulation provide additional prohibitions relative to real, apparent, or potential conflicts of interest.

49 C.F.R. Sec. 19.42 imposes the same requirement for institutions of higher education, hospitals and other non-profit organizations.

The recipient shall maintain written standards of conduct governing the performance of its employees engaged in the award and administration of contracts. No employee, officer, or agent shall participate in the selection, award, or administration of a contract supported by Federal funds if a real or apparent conflict of interest would be involved.

Such a conflict would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of the parties indicated herein, has a financial or other interest in the firm selected for an award. The officers, employees, and agents of the recipient shall neither solicit nor accept gratuities, favors, or anything of monetary value from contractors, or parties to sub-agreements. However, recipients may set standards for situations in which the financial interest is not substantial or the gift is an unsolicited item of nominal value. The standards of conduct shall provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the recipient.

Paragraph 7.c of FTA Circular 4220.1E implements this requirement for FTA grant recipients:

Grantees shall maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. No employee, officer, agent, immediate family member, or Board member of the grantee shall participate in the selection, award, or administration of a contract supported by FTA funds if a conflict of interest, real or apparent would be involved.

Such a conflict would arise when any of the following has a financial or other interest in the firm selected for award:

1. The employee, officer, agent, or Board member,
2. Any member of his/her immediate family,
3. His or her partner, or
4. An organization that employs, or is about to employ, any of the above.

The grantee's officers, employees, agents, or Board members will neither solicit nor accept gifts, gratuities, favors, or anything of monetary value from contractors, potential contractors, or parties to sub-agreements. Grantees may set minimum rules where the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by state or local law or regulations, such standards of conduct will provide for penalties, sanctions, or other disciplinary action for violation of such standards by the grantee's officers, employees, or agents, or by contractors or their agents.

Conflicts of Interest: Personal and Organizational

REQUIREMENTS

As an ethics requirement, Section 3(a) of the FTA Master Agreement requires the written standards of conduct to encompass both personal and organizational conflicts of interest and defines them as follows:

1. **Personal Conflicts of Interest.** The Recipient's code or standards of conduct shall prohibit the Recipient's employees, officers, board members, or agents from participating in the selection, award, or administration of a third party contract or sub-agreement supported by Federal funds if a real or apparent conflict of interest would be involved. Such a conflict would arise when any of the following parties has a financial or other interest in the entity selected for award: (a) an employee, officer, board member, or agent; (b) any member of his or her immediate family; (c) his or her partner; or (d) an organization that employs, or intends to employ, any of the above.
2. **Organizational Conflicts of Interest.** The Recipient's code or standards of conduct must include procedures for identifying and preventing real and apparent organizational conflicts of interest. An organizational conflict of interest exists when the nature of the work to be performed under a proposed third party contract or sub-agreement may, without some restrictions on future activities, result in an unfair competitive advantage to the third party contractor or sub-recipient or impair its objectivity in performing the contract work.

49 CFR § 18.36(c)(v) and 49 CFR § 19.43 prohibit organizational conflicts of interest as restrictive of competition. Section 19.43 further states as follows:

All procurement transactions shall be conducted in a manner to provide, to the maximum extent practical, open and free competition. The recipient [[Page 167]] shall be alert to organizational conflicts of interest as well as noncompetitive practices among contractors that may restrict or eliminate competition or otherwise restrain trade. In order to ensure objective contractor performance and eliminate unfair competitive advantage, contractors that develop or draft specifications, requirements, statements of work, invitations for bids and/or requests for proposals shall be excluded from competing for such procurements. Awards shall be made to the bidder or offeror whose bid or offer is responsive to the solicitation and is most advantageous to the recipient, price, quality and other factors considered. Solicitations shall clearly set forth all requirements that the bidder or offeror shall fulfill in order for the bid or offer to be evaluated by the recipient. Any and all bids or offers may be rejected when it is in the recipient's interest to do so.

40 CFR § 1506.5(c) concerns the engagement of a consultant for the preparation of an environmental impact statement. It states the following:

Environmental impact statements. Except as provided in Secs. 1506.2 and 1506.3 any environmental impact statement prepared pursuant to the requirements of NEPA shall be prepared directly by or by a contractor selected by the lead agency or where appropriate under Sec. 1501.6(b), a cooperating agency. It is the intent of these regulations that the contractor be chosen solely by the lead agency, or by the lead agency in cooperation with cooperating agencies, or where appropriate by a cooperating agency to avoid any conflict of interest. Contractors shall execute a disclosure statement prepared by the lead agency, or where appropriate the cooperating agency, specifying that they have no financial or other interest in the outcome of the project. If the document is prepared by contract, the responsible Federal official shall furnish guidance and participate in the preparation and shall independently evaluate the statement prior to its approval and take responsibility for its scope and contents. Nothing in this section is intended to prohibit any agency from requesting any person to submit information to it or to prohibit any person from submitting information to any agency.

DISCUSSION

A. Why Conflicts of Interest Pose a Problem

Every citizen is entitled to have confidence in the integrity of government. Therefore, when using public funds for the purchase of goods or services, each FTA grantee must prevent its personnel from taking any action that might result in -- or even create the appearance of -- a

personal or organizational conflict of interest. Avoiding conflicts of interest, through the implementation of written standards of conduct, benefits the grantee in many ways and leads to a more efficient and credible organization, while failure to deal with conflicts may not only adversely impact the project itself but may also jeopardize the grantee's ability to receive or retain federal funds.¹²

B. Responsibility of Grantee

The grantee is responsible for avoiding both personal and organizational conflicts of interest. Thus, grantees should be vigilant in preventing and mitigating possible conflicts.

C. Standards of Conduct

Each grantee must have written standards of conduct governing the performance of its personnel involved in the selection, award and/or administration of contracts.¹³ The standards must prohibit the grantee's or sub-grantee's officers, employees or agents from soliciting or accepting gratuities, favors or things of monetary value from contractors, potential contractors, or parties to sub-agreements. The standards may contain minimum rules where the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by State or local law or regulations, the standards should provide for penalties, sanctions, or other disciplinary actions for violations of such standards by the grantee's and sub-grantee's officers, employees, or agents, or by contractors or their agents. These written standards must prohibit *personal* and *organizational* conflicts of interest, *real* and *apparent*.

D. Personal Conflicts of Interest

Personal Conflict of Interest: A personal conflict of interest arises when one of the grantee's employees (including contractor employees), officers, board members, or agents (including outside consultants) involved in the selection, award or administration of a third party contract or sub-agreement¹⁴ supported by Federal funds -- or a member of his or her immediate family, partner, or outside employer or prospective employer -- has a financial interest in the entity

¹² - FTA Master Agreement Sections 3(a) and 3(a)(1); 49 CFR § 18.36(3); FTA Circular 4220.1E Paragraph 7(c). In addition, many state and local jurisdictions have laws and regulations, which address both the conduct of public employees and the relationship between public entities and private businesses. These vary in nature, and may impose both civil and criminal sanctions on violators.

¹³ - See FTA Master Agreement Section 3(a)(1).

¹⁴ - This interpretation applies to both subcontractors and general contractors providing procurement-related services to a grantee.

selected, or competing, for the contract.¹⁵ A personal conflict of interest also arises where any grantee employee, officer, board member, or agent solicits or accepts gifts, gratuities, favors, or anything of monetary value from a contractor, potential contractor, or party to a sub-agreement.¹⁶ In addition, a personal conflict of interest arises where any such person uses his position, or non-public information gained during his work for the grantee, for personal gain, including gain inuring to an immediate family member, partner, or current or potential employer. These scenarios can result in potential organizational conflicts for employers, or personal conflicts of interest for the individual.

E. Organizational Conflicts of Interest

Organizational Conflict of Interest: An organizational conflict of interest occurs where - because of other activities, financial interests, relationships, or contracts - a contractor is unable, or potentially unable, to render impartial assistance or advice to the grantee; the contractor's objectivity in performing the contract work is or might be impaired; or a contractor has an unfair competitive advantage.¹⁷ Organizational conflicts of interest can cause two distinct problems: *bias* and *unfair competitive advantage*.¹⁸

¹⁵ - A personal conflict also arises where a person whose financial interests are attributed to the employee has a conflict – either because that person is an employee, prospective employee, officer, director, or agent of a contractor or competing entity, or because that person has a financial interest in the contractor or competing entity. The financial interests of the following are attributed to an employee: **a member of the employee's immediate family, his partner, or his outside employer or prospective employer.** FTA Circular 4220.1E Paragraph 7(c).

¹⁶ - See FTA Circular 4220.1E Paragraph 7(c); 18 CFR § 18.36(3)(iv); FTA Master Agreement Section 3(a). However, “[t]he Recipient may set minimum rules where the financial interest is not substantial, or the gift is an unsolicited item of nominal intrinsic value.” FTA Master Agreement Section 3(a); see also FTA Circular 4220.1E Paragraph 7(c); 18 CFR § 18.36(3)(iv). These are known as “de minimus” gifts, and do not result in either a real or apparent conflict of interest. For FTA and other Federal employees, the level is set at \$20 per occasion, with a maximum of \$50 per calendar year from the same source (including affiliates). In many cases, however, the best response to a gift offered is a simple, “Thank you, but no thank you.” Section 3(a) of the FTA Master Agreement requires that grantees include in the standards of conduct penalties, sanctions, or other disciplinary actions for violations of the code, to the extent permitted by state or local law.

¹⁷ - See FTA Circular 4220.1E Paragraph 8(a)(5). The Federal Acquisition Regulations also provide a helpful definition of organizational conflict of interest: “Organizational conflict of interest means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage.” 48 CFR § 9.501.

¹⁸ - Generally, an organizational conflict arises because a person or entity has or appears to have loyalties to, or a financial interest in, two organizations that may have competing or differing interests from each other -- one of them being the grantee. For example, an organizational conflict would arise if an employee or a consultant serves as a member of a public or quasi-public body with regulatory authority over a project or has a stake in its outcome. This arises most often where architects sit on design review or zoning boards.

Bias arises when a contractor is placed in a situation where it may have an incentive to distort its advice or decisions. Whenever the grantee is awarding a contract that involves the rendering of advice, the grantee must consider whether there exists the potential for a conflict of interest on the part of the contractor rendering the advice.¹⁹

Unfair competitive advantage occurs when one contractor has information not available to other contractors in the normal course of business. For example, an unfair competitive advantage would occur when a contractor developing specifications or work statements has access to information that the grantee has paid the contractor to develop, or information which the grantee has furnished to the contractor for its work, when that information has not been made available to the public. Because this information enhances the contractor's competitive position in the procurement process, it represents an unfair competitive advantage over the other offerors. One solution to this problem is to fully disclose all information to all prospective offerors for a reasonable period of time prior to the grantee's receipt of proposals for the follow-on work. Another example where an unfair competitive advantage might arise is where a contractor is allowed to write specifications or statements of work around its own or an affiliate's corporate strengths or products and then compete for a contract based on those specifications. The grantee can prevent such an unfair advantage by placing reasonable restrictions or even a prohibition on the contractor's involvement in the subsequent procurement. If an individual employee has access to inside information, a possible solution would be to wall off that employee, so he cannot give his employer an unfair competitive advantage. Grantees should exercise care that specifications do not provide an unfair competitive advantage to any party. Grantees should also be alert to affiliations among contractors that might give one contractor an unfair competitive advantage over others.

Note: A competitive advantage is not always *unfair*. A contractor may have a *fair* competitive advantage by virtue of its prior experience, its expertise, its more efficient operations, etc. Occasionally an incumbent contractor may have what appears to be an insurmountable competitive advantage by virtue of its previous work for the grantee. An advantage of this type may not necessarily be *unfair*.

F. The “Appearance of Conflict” Standard

As stated above, FTA rules prohibit conflicts of interest -- both real and apparent. This rule applies to both personal and organizational conflicts of interest. Thus, each grantee's written code of conduct must prohibit real and apparent conflicts, not just actual conflicts of interest. The grantee should utilize the “reasonableness” standard to determine whether an “apparent” conflict

¹⁹ - Federal transit law requires grantees to award contracts through a process of full and open competition. Organizational conflicts of interest that give any party an unfair competitive advantage impede full and open competition, and thus are considered “restrictive of competition” under Paragraph 8(a)(5) of FTA Circular 4220.1E.

of interest exists: *Would a reasonable person with all the material facts believe there appears to be a conflict?*

G. Environmental Consultants

The Council on Environmental Quality (CEQ) has enacted regulations that address the use of consultants in the environmental process.²⁰ These regulations are intended to prevent contractors who are hired to study alternatives and potential environmental impacts of proposed projects from presenting and profiting from biased recommendations.

The CEQ regulation at 40 CFR Section 1506.5 “prohibits a person or entity from entering into a contract with a federal agency to prepare an environmental impact statement (EIS) when that party has at that time and during the life of the contract pecuniary or other interests in the outcomes of the proposal. Thus, a firm which has an agreement to prepare an EIS for a construction project cannot, at the same time, have an agreement to perform the construction, nor could it be the owner of the construction site.” See “Guidance Regarding NEPA Regulations,” 48 Fed. Reg. 34263 (July 18, 1983). FTA recognized this principle in the bid protest case of *JMA v. LACMTA*, MTA RFP #PS-4310-0964 (2001), holding as follows: “FTA understands the CEQ regulations to prohibit an EIS contractor from being awarded a contract that includes work dependent upon the completion of the EIS and issuance of a ROD.”

CEQ rules do not prohibit a consultant responsible for preparing an EIS from submitting a proposal on work connected with the project after the completion of the EIS. Indeed, in guidance offered by the CEQ, the Council expressed concern that “some agencies have been interpreting the conflicts provision in an overly burdensome manner.” See “Guidance Regarding NEPA Regulations,” 48 Fed. Reg. 34263 (July 18, 1983). The Council explained that, “[i]n some instances, multidisciplinary firms are being excluded from environmental impact statement preparation contracts because of links to a parent company which has design and/or construction capabilities. Some qualified contractors are not bidding on environmental impact statement contracts because of fears that their firm may be excluded from future design or construction contracts.... The result of these misunderstandings has been reduced competition in bidding for EIS preparation contracts, unnecessary delays in selecting a contractor and preparing the EIS, and confusion and resentment about the requirement.” Thus, the Council does not prohibit an EIS contractor from bidding on work connected with the project after the contractor has completed all performance required for the EIS, but it does prohibit situations where the contractor has an interest in the outcome of the EIS “at that time or during the life of” the EIS contract.

²⁰ - Mergers and acquisitions have had a strong effect on contracts in the environmental area, thus warranting a separate discussion of this topic.

H. Insisting on Impartiality

Each grantee is entitled to impartial advice from its consultants, based solely on what is best for the transit system and the community, and not for the benefit of persons with conflicting financial or other interests. For additional protection, the grantee not only should enforce its own written standards of conduct but insist, perhaps through the use of certifications, that each of its employees, board members, officers, or other agents (as well as contractor personnel) observe any relevant code of professional responsibility governing his or her conduct, such as the codes governing the conduct of lawyers, engineers, architects, planners, and accountants. Among other things, this requirement would demonstrate to the grantee's employees and contractors the importance placed by the grantee on avoiding conflicts of interest.

I. Grantee Decision to Proceed in Spite of Conflict of Interest.

Finally, when a grantee has done all that reasonably can be done to avoid, neutralize, or mitigate a real or apparent conflict of interest, and if it is in the grantee's best interest to proceed with the contract despite the conflict, the grantee needs to document its decision. Documentation should include what steps were taken or considered, and justification for the conclusion reached, before proceeding with the contract.²¹

Best Practices

Every Agency employee involved in the award or administration of contracts must be given a copy of the Agency's (or State's) written standards of conduct, and they should be required to sign a statement that they are familiar with and will abide by these standards.²² These statements should be signed as a condition of employment. It would be well to review and sign them again annually as part of the employee's annual performance evaluation as a means of reinforcing the importance of ethical conduct by the Agency's employees.

In some Agencies, the General Manager has issued a memorandum to all employees summarizing the most sensitive issues dealing with ethical conduct and emphasizing the importance of avoiding even the appearance of conflicts of interest. One public Agency has inserted such a memorandum into its Procurement Manual, together with the standards of conduct.²³

²¹ - This is consistent with the approach used in Federal contracting as set forth in FAR 9.504(e), where a contract can be awarded in spite of a conflict when the contracting officer determines that it is in the best interest of the Government to do so.

²² - Recommendation of the ABA Model Procurement Code, § R12-202.01.

²³ - BART Procurement Manual, Attachment B.

One area of particular sensitivity concerns "outside employment." Employees must understand what kinds of activities or outside employment (actual or prospective) are inconsistent with their Agency responsibilities; e.g., furnishing advice or services to a firm which is bidding on or planning to bid on a contract with the Agency, or which is doing business presently with the Agency. One strategy employed by firms bidding on contracts is to offer employment to critical procurement or technical personnel working on the procurement (if the firm is selected for award). This kind of situation creates a financial conflict of interest for those employees to whom offers have been made. Employees need to be forewarned of these and similar tactics which they may encounter in the course of their Agency work. The Agency may want to conduct training sessions for all Agency personnel doing sensitive work in the acquisition of Agency equipment or services.

Many public Agencies have adopted disclosure statement requirements for certain positions. These disclosure statements require that employees occupying designated positions within the Agency disclose their investments in businesses which engage in certain activities related to the business of the Agency. Reportable interests might include companies engaged in manufacturing rail transit rolling stock and related components, transit equipment suppliers, construction companies engaged in transit systems, etc.

The FTA Circular requires penalties, sanctions, or other disciplinary action for violation of the standards of conduct by the grantee's employees or by contractors. The lack of explicit penalties in grantees' procurement policies and procedures is a recurring observation made in the FTA Procurement System Reviews. Grantees need to adopt explicit written penalties for their employees and contractors who violate their standards of conduct.

Procedural Suggestions

The following is an outline of the steps that each grantee should consider taking before and during the procurement process and during project administration. Conflicts also can occur even before the pre-contracting phase begins, so grantees should *always* be vigilant to the possibility of a conflict.

A. THE PRE-CONTRACTING PHASE

1. Prepare Written Codes of Standards of Conduct. FTA requires that each of its grantees maintain a written code of standards of conduct applicable to its employees (including contractor employees), officers, board members, and agents (including outside consultants) involved in the selection, award or administration of contracts. Each grantee should consult with its counsel, as well as its procurement personnel, as to whether its code of conduct complies with FTA's requirements as set forth in Section 3 of FTA's Master Agreement, Paragraphs 7(c) and 8(a)(5) of FTA Circular 4220.1E, Third Party Contracting Requirements, and 49 CFR § 18.36 and Part 19, as applicable. Moreover, the grantee should provide a copy of its code of conduct to each of its employees, board members, officers, and other agents.

2. Require Financial Disclosure Statements and/or Non-Conflict Certifications. When determining how to deal with potential conflicts of interest, a grantee may choose “proactive” measures, “reactive” measures, or a combination approach. “Proactive” measures are designed to identify and prevent potential conflicts *prospectively*. For example, a grantee interested in employing proactive measures should consider requiring each of its employees (and others potentially involved in the procurement process) to file an annual disclosure statement concerning his or her financial and employment status and that of immediate family members (to the extent state and local law permit such a financial disclosure requirement).²⁴ With this information on file, the grantee can “proactively” determine, ahead of time, whether any of its employees (etc.) have interests in any of the potential or actual contractors on a particular project. The grantee, for example, can run a search on the parents, subsidiaries, and affiliates of bidders and contractors, as well as on any companies listed on employee disclosure statements, and get a broad picture of any potential conflicts. If a conflict is discovered, the grantee can -- again, “proactively” -- wall off any employee who may have a potential conflict from a particular project, thus avoiding the need for later action.

In some cases a grantee may require its contracting personnel (officers, board members, agents, etc., as applicable) to submit a “non-conflict” certification on a project-by-project basis, before that person commences work on the selection, award or administration of a contract. Such certification would state that neither the employee (etc.) nor any member of his or her immediate family has a financial or employment interest in any of the relevant bidders or contractors for the procurement in question. If the employee identifies a real or apparent conflict of interest, then the grantee can take action to mitigate it. This is a different, somewhat “reactive,” approach than requiring annual financial disclosure statements.

There are pros and cons to both approaches. With annual financial disclosure statements, the grantee attempts to identify and mitigate conflicts as early as possible in the procurement process; but in order for this approach to be effective, the grantee’s reviewer must both review the disclosure statements and perform relevant research as well as be aware of the various corporate interconnections. An advantage of a project-specific disclosure statement is that it serves as a regular reminder to employees of the importance of conflict avoidance, and thus may prevent some conflicts of interest from arising in the first place. Realistically, however, requiring disclosure statements on a project-by-project basis generally is too onerous for the grantees that handle many procurements every year. Moreover, this somewhat “reactive” approach puts a serious burden on the individual employee (etc.) to “self-certify” that he has no conflict on a particular project, with the understanding that the grantee will hold him accountable for the veracity of that certification. It is also possible that an individual employee, unaware of the ownership or other links between prospective bidders or contractors and the financial interests he holds, may unknowingly self-certify that no conflict exists.

²⁴ - Each grantee also should consult with its counsel before requiring annual financial disclosure statements to confirm that the requirement complies with any labor agreements applicable to the grantee.

The two approaches, however, are not mutually exclusive, and the best approach may be a combination of proactive and reactive tools. Ultimately, each grantee must determine for itself the preferable approach, considering the costs involved in administering its program and any other matter the grantee deems pertinent to the decision. As indicated above, any program requiring certifications or disclosure statements from employees also should apply those requirements to the other categories of individuals listed in FTA Circular 4220.1E, specifically, officers, board members, and agents, including consultants and contractors involved in the selection, award or administration of contracts. Finally, the grantee should ask its counsel to review the form of its financial disclosure statements or non-conflict certifications for compliance with local, state, and federal law before they are issued.

3. Obtain Certifications of Compliance with Professional Codes of Conduct. The grantee should consider requiring each of its employees, board members, officers, and agents to identify in writing any code of professional responsibility governing his or her conduct, and to certify that to the best of his or her ability he or she will comply with that code whenever conducting business on behalf of the grantee. To be effective, such a requirement must be coupled with a mechanism for reporting violations to the appropriate enforcement entity.

4. Prepare Written Procedures for Addressing Personal and Organizational Conflicts of Interest. The grantees' written procedures should establish not only a means of identifying conflicts but also a predictable method of resolving them. For example, once a personal conflict has been identified, mitigating measures may include creation of blind trusts, recusal or other limits on scope of participation, procedures to allow the employee back inside the information bubble if the conflict ends (e.g., the company that the employee owns stock in does not win the contract), etc. The written procedures may address:

- a. Responsibility for identifying potential conflicts;
- b. Range of alternative actions;
- c. Typical situations and the indicated response, for example:
 - i. Situations that may warrant advance restrictions:
 - A contract for procurement evaluation services;
 - A contract for advice on competing approaches;
 - A contract for technical review and project oversight services; or
 - ii. Situations that may warrant other conflict-mitigation measures, or even a possible waiver, rather than a prohibition against a contractor's participation in the project:
 - Complex design of integrated elements of a structure, piece of equipment, or system; or

- Successive development/design phases of innovative equipment or systems.
- d. Participation of qualified personnel in the resolution of conflicts; and
- e. Review and approval of conflict resolutions.

The grantee should seek the assistance of counsel in preparing written procedures for resolving conflicts of interest.

B. THE PROPOSAL STAGE

1. Define the Project to Avoid Potential Conflicts. Grantees should anticipate potential conflicts and structure procurements accordingly. For example, the grantee should not allow a company that prepares the specifications for procurement to supply the products as well. Also, the grantee should be careful to structure the project so as to avoid conflicts among contractors and subcontractors. For example, on a large project, the grantee could avoid possible *bias* by procuring one contractor to perform the needed evaluation independently, and then initiating a new procurement to obtain any system that may be required and excluding the first contractor from that second competition.²⁵

2. Consider Advance Restrictions. When the grantee awards separate contracts on related procurements, it might consider placing notice of an advance restriction in the solicitation where a conflict may arise. It is far better to identify a potential conflict involving two contracts in the first solicitation than to award the first contract and then address the conflict when awarding the second contract. Prime contractors should be required to inform prospective subcontractors (and to give evidence that they have done so) that the subcontractors also could be subject to the restrictions in future contracting. This way, each bidder (prime and subcontractors) for the first contract will be aware of the situation and can make its own choice about which contract to pursue. When an advance restriction is desired, consider including:

- An explanation of the conflict or potential conflict;
- The nature of the proposed restriction upon future contractor activities; and
- The terms of any proposed clause and whether those terms are negotiable, depending on the nature of the acquisition.

²⁵ - In large undertakings, this may involve multiple, related consulting, planning, design, technical oversight or technical evaluation contracts. Grantees can work with persons experienced in the field to decide how to segment the procurements and what restrictions to impose.

3. For Environmental Impact Statement Contracts, Comply with CEQ Regulations.

Regulations promulgated by the Council on Environmental Quality require each contractor who develops an environmental impact statement to sign a disclosure statement (prepared by the grantee) certifying that it has no financial or other interests in the outcome of the proposed project.²⁶ This requirement is intended to prevent contractors who are hired to study alternatives and potential environmental impacts of proposed projects from presenting and profiting from biased recommendations. Pursuant to the regulations, grantees must require the submission of a disclosure statement in RFPs for consulting services so that such conflicts can be identified early in the contracting process. The grantee also must comply with 40 CFR § 1506.5 and “Guidance Regarding NEPA Regulations,” 48 Fed. Reg. 34263 (July 18, 1983), explained above in Section G of the Discussion.

4. Consult With Legal Counsel. Before defining the scope of any project or publishing any document describing the project, such as a statement of work, the grantee should ask its counsel to review the project and any descriptive documentation for compliance with conflicts rules.

C. THE SELECTION AND AWARD PHASE

1. Review Disclosure Statements (if required by the grantee) for Potential Conflicts with Bidders. If the grantee requires its procurement staff to submit annual financial disclosure statements or project-specific disclosure statements, the grantee should review the information on such statements for potential conflicts before any procurement staff begins work on the selection process. If the employee’s work on the project would cause a real or apparent conflict, then the grantee should reassign his or her duties on the project to another employee.

2. Obtain No-Conflict Certifications from contract personnel (if required by the grantee). If the grantee requires its contract personnel who will participate in the administration of a contract to submit no-conflict certifications, then the grantee should furnish information on the likely bidders to the contractor. Each contractor employee who will be assigned to work on the procurement should submit his or her certification to the grantee’s reviewing official before the selection process begins. If a contractor employee fails to submit the required no-conflict certification, then the grantee should direct the contractor to reassign that employee’s duties to another employee who has complied with the certification requirement.

D. THE ADMINISTRATION PHASE

1. Monitor Contract Staff/Contractor Compliance with Conflicts Rules. During the administration phase of a project, the grantee should require each of its employees (etc.) involved

²⁶ - 40 CFR § 1506.5. Note that if a contractor has a financial interest in the outcome of the proposed project, the contractor should inform the grantee of its interest. Under appropriate circumstances, the grantee may choose to waive the conflict of interest after careful consideration (see Discussion Section I).

in the project to report any changes in his or her financial holdings or other interests that might cause a conflict of interest. Similarly, the grantee should require the contractor to report any changes in the company's financial holdings, newly developed contractual or other relationships, or those of its parents, subsidiaries, and affiliates. In this way, the grantee can monitor the situation and address personal or organizational conflicts that might arise during the administration phase of the project.

2. Obtain Certifications from Contractor Personnel Governed by Professional Codes of Responsibility. Before a contractor begins work on a project, the grantee should consider requesting a written statement from any contractor personnel working on the project whose conduct is governed by a professional code of responsibility, in each case identifying any relevant code and certifying that he or she will comply with its rules on all grantee-related work.

E. *THROUGHOUT THE ENTIRE PROCESS*

1. Consult with Legal Counsel. Grantee procurement and technical personnel are encouraged to work closely -- and proactively -- with their legal counsel throughout the procurement process to review all situations that appear to have the potential for a conflict of interest. Counsel can help in any number of ways, including reviewing written materials for compliance with conflicts of interest rules, preparing restrictive contracting clauses suitable for the particular situation, and helping to restructure the project to avoid conflict situations. Counsel may also suggest that involvement by FTA Regional Counsel would be appropriate and solicit Regional Counsel's advice when necessary.

2. Mitigate Conflicts. As potential conflicts arise during the procurement process, the grantee must take steps to avoid the conflict or, if that is not possible, mitigate its effects. For example, where a grantee's board is responsible for awarding contracts, a board member with an interest in a project bidder should disclose his interest and recuse himself from the selection process. As another example, where an employee has an interest in a project bidder, the grantee could create a "fire-wall" preventing the employee from providing the bidder with any information gained during his employment with the grantee that would give the bidder an unfair competitive advantage. As always, the grantee should consult with counsel in formulating an appropriate approach to any conflict situation.

2.4.2.2.3 Geographic Restrictions

REQUIREMENT
<p>Paragraph 15.h of the Master Agreement states:</p> <p>h. <u>Geographic Restrictions.</u> The recipient agrees to refrain from using State or local geographic preference, except those expressly mandated or encouraged by Federal statute, such as those set forth in Subsection 15.i of this Master Agreement below, or as permitted by FTA.</p>

- i. Architectural, Engineering, Design, or Related Services. ...Provided a sufficient number of qualified firms are eligible to compete for the third-party contract, geographic location may be a selection criterion....

Paragraph 8.b of FTA Circular 4220.1E states:

- b. Prohibition Against Geographic Preferences. Grantees shall conduct procurements in a manner that prohibits the use of statutory or administratively imposed in-State or local geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. This does not preempt State licensing laws. However, geographic location may be a selection criterion in procurements for architectural and engineering (A&E) services provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.

DISCUSSION

The prohibition against geographic preferences as stated in FTA Circular 4220.1E is based upon 49 CFR Part 18.36 (c) (2). The only exception noted to this prohibition is in the procurement of architectural and engineering (A&E) services, where knowledge of local conditions and building codes is a relevant factor in the quality of the A&E services. One public Agency, in its procurement procedures manual for A&E contracts, recognizes the importance of the A&E's knowledge of local conditions, and requires that A&E proposals be evaluated in terms of their:

*Knowledge of the locality of the project, provided that application of this criterion leaves an appropriate number of qualified firms, given the nature and size of the project.*²⁷

This Agency has stated its policy in terms which are focused on the one generally accepted reason for allowing geographical preferences - an A&E firm's demonstrated knowledge of local conditions, which is a factor affecting the quality of the final product. This same Agency prohibits geographic restrictions, except for those permitted by FTA for A&E services, not only for its own procurements but for those of its contractors as well.²⁸
Some grantees have used very localized geographical restrictions in their solicitations for parts or services which must be furnished on a short lead-time basis; e.g., within one or two hours of the request. A much better approach, and one that is not prohibited by the FTA

²⁷ - Los Angeles County Metropolitan Transportation Authority. Procurement Manual Section 908(e).

²⁸ - Ibid., Section 2314.

Circular, would be to require an ability by the contractor to respond within the time frame needed, and not to stipulate a geographical restriction in the solicitation. The reason is that many parts suppliers maintain a staff which is capable of quick response even though they are not in the immediate city or county of the grantee.

Grantee procurement officials are sometimes confronted with pressure from their Board members to place contracts with local firms, and it is necessary for the grantees to include explicit statements in their procurement policies and procedures that geographical restrictions are prohibited except for A&E procurements, citing the FTA prohibitions in FTA Circular 4220.1E, paragraph 8.b.

2.4.2.2.4 Prequalification

REQUIREMENT

Paragraph 8.d of FTA Circular 4220.1E states:

d. Prequalification Criteria. Grantees shall ensure that all lists of prequalified persons, firms, or products that are used in acquiring goods and services are current and include enough qualified sources to ensure maximum full and open competition. Also, grantees shall not preclude potential bidders from qualifying during the solicitation period, which is from issuance of the solicitation to its closing date.

DISCUSSION

Prequalification of bidders and products has been used in several circumstances, such as when an Agency is procuring critical equipment with exacting performance requirements, or critical services which are needed on a quick-reaction basis. A qualified products list (QPL) is a listing of products which have been tested and found to have satisfied all of the specified requirements. The products on the list may be supplied by any responsible vendor bidding on the procurement. The qualified bidders list (QBL) is a listing of bidders who are manufacturing more complex items, such as buses, requiring sophisticated manufacturing and quality control procedures. These bidders must be reviewed carefully to determine if their internal controls and procedures will produce satisfactory end products. These pre-qualification procedures may also be appropriate for companies who wish to bid on procurements for furnishing critical services, such as quick reaction services for repairs, etc. Only those bidders on the qualified bidders list may supply the products or services specified. The Federal government has used this practice for critical military equipment, such as jet engine turbine blades, or for critical quick-reaction services such as ship repairs. Transit Agencies using this procedure of establishing a qualified products list (QPL) often cite a rationale of: "For reasons of efficiency, economy, compatibility, or

maintenance reliability, there is a need for standardization as to various supplies, materials, and equipment." ²⁹

Best Practices

Documenting your decision to establish a QPL or QBL - Care must be taken to ensure that prequalification procedures are not used to restrict full and open competition. Toward this goal Federal Agencies are required to justify in writing the necessity for establishing a prequalification requirement. ³⁰ Some transit Agencies have also chosen to follow this practice of documenting the reasons why a particular part or service is being placed on a qualified products list (QPL) or a qualified bidders list (QBL), although they are not required to do so by FTA. ³¹

Qualifying during solicitation period - Some Transit agencies have two different policies as to bids offering products which have not been qualified prior to the solicitation. When using non-Federal funds, the Agency will not allow bidders to offer non-qualified products in response to a solicitation--bidders must obtain certification of their product before, and independently of, any solicitation for that item. *When using grant funds, however, grantees must allow vendors an opportunity to qualify their products during the solicitation period* (FTA Circular 4220.1E, Paragraph 8.d). A grantee would not be expected, however, to delay a proposed award (extend the solicitation period) in order to afford a vendor the opportunity to demonstrate that its product meets the standards in the specification. The Federal procurement rules do not require Federal Agencies to delay awards, and the standards applicable to these Agencies should be appropriate for grantees as well. ³²

2.4.3 Fixed Price v. Cost Reimbursement

REQUIREMENT

Paragraph 9.c of FTA Circular 4220.1E authorizes procurement by the Sealed Bid/Invitation For Bids (IFB) method when certain conditions are present. Among those listed is the condition that:

- (c) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price.

²⁹ - Ibid., Section 407.5. Also San Francisco Bay Area Rapid Transit District (BART). Procurement Manual, Section II-7.

³⁰ - FAR 9.202.

³¹ - Los Angeles County Metropolitan Transportation Authority. Procurement Manual, Section 407.5 (1)(a).

³² - FAR, Section 9.202 (e).

Paragraph 9.d authorizes procurement by the Competitive Proposal/Request for Proposals (RFP) method and either a fixed price or cost reimbursement type contract may be awarded.

Paragraph 7.i requires that grantees document their reasons for selecting the contract type as a part of the written record of procurement history.

Paragraph 10.e prohibits the cost plus a percentage of cost method of contracting.

DISCUSSION

The selection of contract type is probably the single most important decision that the procurement specialist will make in the acquisition process. A properly selected contract type will work in the interests of the buying Agency to provide a product or service which meets the Agency's needs at a reasonable price without undue risks to the contractor and without excessive contract administration costs and contractor claims. A contract poorly suited to the complexity of the requirement, and the degree of specificity of the specifications or statement of work, can cause a disastrous situation for both the contractor and the Agency. When Agencies have complex requirements, and performance uncertainties make it difficult to predict the costs of performance in advance, some type of flexibly-priced contract should be considered. Where the length of contract performance extends over a long period of time, some type of economic price adjustment terms may be necessary. As requirements are repetitively acquired, and a history is established, the Agency should be able to more clearly define the requirement, and contractors should be able to assume greater risks of performance at fixed prices. Grantees have a very wide latitude in structuring a contract type which affords the best incentive to the contractor for delivering the particular product or service being acquired.

There are two broad categories of contract types: fixed-price contracts and cost-reimbursement contracts. Within these two families of contract types there are a number of subtypes offering differing degrees of incentives. At the extremes are the firm-fixed-price contract, in which the contractor has complete responsibility for the costs of performance and the resulting profit or loss, and the cost-plus-fixed-fee contract, in which the contractor has virtually no risk for performance costs and the fee (profit) is fixed. Between these two extremes are the various incentive-type contracts where the degree of cost risk and profit incentive can be tailored to meet almost any specific program situation.

All fixed-price contract types impose upon the contractor an obligation to deliver the product specified in the contract, and he is not entitled to payment of the stipulated price unless he delivers the product and it meets the specifications called out in the contract. On cost-reimbursement contracts the contractor is obligated only to give its "best efforts" in order to be paid the costs of performance. The fee, however, is earned for complete performance of the contract, and if less than full performance is made, the buying Agency

is entitled to a reduction of the fixed fee based on the percentage of completion of the work.)

2.4.3.1 Fixed Price Contracts

DISCUSSION

A firm-fixed price contract establishes a single price, or a series of line item or unit prices, that are not subject to any adjustment on the basis of the contractor's cost experience in performing the contract. The contractor takes full responsibility for the cost and profit outcome, and thus the contractor has maximum incentive to control costs and complete the contract on schedule. This contract type represents the least administrative burden upon the contracting parties; e.g., it is not necessary for the buyer to monitor contractor costs or to perform contract closeout audits. In some cases, however, there may be a need for audits if, for example, change orders have been issued on a cost-reimbursable basis.

Firm-fixed-price contracts are appropriate for acquiring commercial items, or for supplies or services which can be clearly defined with either performance/functional specifications or design specifications, and where performance uncertainties do not impose unreasonably high risks upon the contractor.³³ This aspect of performance risk is important to judge realistically, for if contractors are put into positions of undue risk and the worst case happens, the buying Agency can look forward to excessive claims, possible litigation, a poor-quality product where the contractor has "cut corners" to save money, and in some cases, the bankruptcy of the contractor or refusal to complete the contract. High-risk performance situations will also result in contractors building costly contingencies into their prices for risks that may never occur, resulting in higher than necessary prices and excessive profits on that contract.

Fixed Price Contracts With Economic Price Adjustment - Fixed-price contracts may provide for price adjustments (upward or downward) when specified contingencies occur. These contracts are typically used when there is serious doubt about the stability of selected costs or prices over an extended period of contract performance. For example, a five-year fixed-price contract may present an unusually high cost risk to a contractor for certain commodity prices or labor costs, and the parties may agree to use an economic price adjustment clause. Price adjustments may be based on published indices, actual cost experiences of the contractor for certain materials or labor, or increases or decreases in published prices for specific items. The contract will define the circumstances under which the economic price adjustment will be made and the means whereby it will be calculated. Using economic price adjustment clauses is an excellent way to deal with high-risk situations and avoid having to price the initial contract on the basis of contingencies that

³³ - Many state laws require construction contracts to be awarded at a firm fixed price.

may never occur. This technique may also be necessary to get contractors to accept fixed-price contracts that have a lengthy performance period.³⁴

Best Practices

You may want to refer to the *Federal Acquisition Regulations* (FAR), Subpart 16.203 -*Fixed-price contracts with economic price adjustment*, and the related contract clause language in FAR 52.216-2,3,4. These FAR provisions and contract clauses are not required to be followed by FTA grantees but they may prove helpful in structuring contract language for specific contingencies. The FAR may be accessed online at <http://www.arnet.gov/far/>.

Steel Price Escalation Clauses – Following are two examples of steel price escalation clauses used by transit agencies. The first clause (Sound Transit) uses a one-time price adjustment. The second clause (New York City Transit) allows for multiple price adjustments.

One-Time Price Adjustment - Following is an example of an economic price adjustment contract clause used by Sound Transit one transit agency to provide for one steel price increase during the period of the contract. Note that this clause:

1. Bases the price adjustment on the steel supplier's invoices to the Contractor from the time the bid was prepared to the time the steel was ordered after the Notice to Proceed.
2. Requires that the Producer Price Index (PPI) support the price increase as invoiced by the steel supplier. This is an important safeguard in establishing the reasonableness of the supplier's higher price by comparing it to the industry norm.
3. Limits the increase to the lesser of the percentage increase in the invoiced price vs. the PPI.
4. Requires adequate documentation from the Contractor, and the agency's right to review the Contractor's bid preparation documents and supplier invoices.
5. Does not contain a maximum percentage by which the contract price may be adjusted for steel price increases. Under normal circumstances you should include a maximum limit on the percentage increase you will allow but the inclusion here of the lesser of the supplier's increase vs. the PPI provides a certain degree of price protection to the agency.³⁵

³⁴ - It is important that the grantee's project budget reflect an allowance for any potential increase in volatile commodity prices (e.g., steel).

³⁵ - The FAR price escalation clauses in FAR 52.216-2,3,4 include a maximum aggregate price increase of 10 percent; however, the FAR also gives the Contracting Officer latitude to increase this maximum percent if circumstances warrant.

6. The clause provides for downward price adjustments as well as increases.

SP-9.10 STEEL PRICE ESCALATION

- A. A price adjustment clause is included in this Contract to provide additional compensation to the Contractor or a credit to Sound Transit for fluctuations in steel prices. This price adjustment is dependent upon either: an increase or decrease in the price of steel used in the production of products utilized on this project or an increase or decrease in the ratio of the Bureau of Labor Statistics – Producer Price Index listed below. Payment or credit for steel price adjustments will be evaluated under the following conditions. Payment or credit will be made under the Contract Pay item: Provisional Sum – Steel Price Escalation.
- B. The conditions of this provision are as follows:
 1. This provision shall only apply to material cost changes that occur between the date of bid opening and the date of certified invoice. The Contractor is expected to order materials promptly upon Notice to Proceed (or upon shop drawing approval) and take possession of materials as quickly as reasonably possible.³⁶
 2. A price adjustment to provide additional compensation to Contractor will be considered and paid only where the price increase in steel is due to market conditions beyond the control of Contractor and its suppliers or vendors. No adjustment is allowed under this provision for increases due to any other cause or peril (including, but not limited to, strike, weather, vendor backlog, delay in fabrication, etc.). If a price adjustment is sought under this provision, Contractor shall certify to Sound Transit that the price increase was due solely to market conditions beyond its control or that of its suppliers and that Contractor exercised its best efforts to mitigate any price increase. Sound Transit reserves the right to verify the accuracy of such certification as a condition of payment.
 3. This price adjustment clause only applies to structural steel, reinforcing steel, rail, steel excavation support elements, and overhead catenary structure poles. To be considered, the category of material must have a total dollar value of \$25,000 or greater.
 4. The Contractor shall submit within 5 days of Notice of Award, the fabricator's or supplier's material price quotes for the items listed above that meet the requirements of Article 9.10B.3. The Contractor must certify that they are the

³⁶ - When using a steel escalation article only the cost of material is escalated or deescalated and no other costs such as labor or machinery.

actual quoted prices incorporated into the Contractor's bid amount submitted to Sound Transit for the represented pay item. Sound Transit has the right to inspect Contractor's bid preparation documents to verify the accuracy of such certification. Assuming such certification is accurate, these certified quotes will constitute the baseline steel material price. The quote must clearly identify the pay item(s) by number and description, describe the weights of the steel material, how the steel material will be utilized in the final project, and a breakdown of all costs including material, labor, equipment, overhead, and profit. This steel price escalation provision shall only apply to the steel component of the material quote. It shall not apply to any other materials used in the fabrication of an item supplied to the Contractor.

5. For the items listed above that meet the requirements of Article 9.10B.3, the increase or decrease in the steel materials unit cost must be in excess of 5 percent of the original quoted prices or the PPI as described below, for a price adjustment to the Contractor to be allowed.
6. If there is an increase or decrease in steel materials cost in excess of 5 percent from the original quoted unit prices (or the PPI as described in Article 9.10F below), Sound Transit will evaluate and determine an increased or decreased payment(s) under this Contract as follows:
 - C. The adjustment will be determined by computing the mathematical difference between the unit price that is 5 percent above (or below for decreases in price) the base unit price (bid quote) and the actual invoice unit price of the steel component. The final dollar value will be determined by multiplying this adjustment by the represented quantity of steel.
 - D. The Contractor shall submit to Sound Transit certified invoices as soon as steel material is purchased. The invoices shall be listed in chronological order and contain a tabulation of quantity, the order date, the date shipped from the steel manufacturer, and the price per unit weight (reflecting all deductions for quantity shipments) with a breakdown as stipulated in Article 9.10B.4 above. Freight charges shall be listed separately and are not included in this price adjustment. These invoices shall be subject to audit verification.
 - E. Sound Transit will verify the increased or decreased percentage between certified original quote and the actual invoice payment.
 - F. This change shall be supported by the U.S. Department of Labor – Bureau of Labor Statistics index entitled "Producers Price Index" (PPI). The values contained in the PPI are subject to revision 4 months after original publication. The price adjustment for steel shall be a function of the percentage of change of the price index for "Carbon Steel Scrap" Series ID WPU101211. Do not use seasonally adjusted indices. This

index is available on the internet at:

<http://data.bls.gov/labjava/outside.jsp?survey=wp>.

- G. The Producers Price Index (PPI) listed above must meet increase or decrease by at least 5 percent over the same time period for Article 9.10C. to be valid.
- H. For price increases, if the invoiced price increased, expressed as a percentage, exceeds the PPI increase, expressed as a percentage, for the same period, the adjustment will be based on the PPI percent increase; if the invoiced price increase, expressed as a percentage, is less than the PPI increase, expressed as a percentage, for the same period, the adjustment will be based on the invoiced price increase.
- I. For price decreases, if the value of the invoiced price decrease expressed as a percentage is greater than the calculated value of the PPI decrease, expressed as a percentage, for the same period, the adjustment will be based on the value of the invoiced percent decrease. If the value of the invoiced price decrease, expressed as a percentage, is less than the value of the PPI decrease expressed as a percentage for the same period, the adjustment will be based on the PPI percent decrease.
- J. If the PPI controls in determining the price adjustment, Sound Transit will review the PPI 4 months after initial publication to ensure that the data have not been revised. Final payments will be adjusted accordingly.

K. Adjustment Formulas:

1. If Invoice Price Controls:

a. Price Increase:

$$(1) \text{ Factor} = (\text{PC}/\text{PB}) - 1.05$$

If Factor is equal to or less than 0.0, no adjustment will be made.

If Factor is greater than 0.0, continue: $\text{PA} = \text{Factor} * \text{Q} * \text{PB}$

b. Price Decrease:

$$(1) \text{ Factor} = (\text{PC}/\text{PB} - 0.95)$$

If Factor is equal to or greater than 0.0, no adjustment is made.

If Factor is greater than 0.0, continue: $\text{PA} = \text{Factor} * \text{Q} * \text{PB}$

Where: PA = Steel manufacturing price adjustment, in lump sum dollars
PB = Fabricator / supplier quoted price in bid (converted to dollars per pound)

PC = Current certified invoice price (converted to dollars per pound)

Q = Quantity of manufactured steel, in pounds

2. If PPI Controls:

a. Price Increase:

$$(1) \text{ Factor} = (\text{IC}/\text{IB}) - 1.05$$

If Factor is equal to or less than 0.0, no adjustment is made.

If Factor is greater than 0.0, continue: $\text{PA} = \text{Factor} * \text{Q} * \text{PB}$

b. Price Decrease:

$$(1) \text{ Factor} = (\text{IC}/\text{IB} - 0.95)$$

If Factor is equal to or greater than 0.0, no adjustment is made.

If Factor is greater than 0.0, continue: $\text{PA} = \text{Factor} * \text{Q} * \text{PB}$

Where: PA = Steel manufacturing price adjustment, in lump sum dollars
PB = Fabricator / supplier quoted price in bid (converted to dollars per pound)
IB = BLS PPI index at the time of bid
IC = BLS PPI index at the time material is purchased from mill (invoice date; after final US DOL BLS adjustments)
Q = Quantity of manufactured steel, in pounds

Multiple Price Adjustments - Following is an example of an economic price adjustment clause developed by New York City Transit for solicitations. This provision allows for multiple price adjustments during the period of the contract. Note that this clause refers to the “Scrap Steel” index, but any index could be used depending on the material being procured.

SOLICITATION PROVISION

PRICE ADJUSTMENT CLAUSE FOR ITEMS CONTAINING STEEL

To All Prospective Bidders:

New York City Transit (NYCT) is soliciting this item(s) utilizing a price adjustment clause. The clause set forth below is included in this solicitation because of the steel content of the item being procured and the dollar amount of the item. For illustrative purposes, an example of this formula is provided below to assist you in the preparation of your bid.

- In order to apply the adjustment formula, NYCT will utilize the pre-determined percentage steel content of the item's unit price as set forth by NYCT in the Bid Quotation Sheets. This percentage shall remain fixed for the duration of the contract.
- The unit price(s) that NYCT will pay for the item(s) during the first six months of the contract shall be the unit price quoted in the bid by the successful bidder.
- Thereafter, the unit price may be adjusted, either up or down, every six months after award, reflecting the change in the Scrap Steel index set forth in the American Metals Market.
- The adjustment will be in the form of a percentage and shall be determined by NYCT by comparing the Scrap Steel index on the day of bid opening to the index in effect on each six-month anniversary of the contract award date for the duration of the contract.
- This adjustment percentage shall be applied to the portion of the unit price that represents the steel content of each item as predetermined by NYCT to arrive at the adjustment amount.
- The adjustment amount is then applied to the original unit price set forth in the successful bidder's bid to arrive at the new unit price for the following six months.
- No price adjustment shall be instituted unless the new price results in a percentage change of at least five (5) percent (increase or decrease) of the original unit price quoted by the successful bidder.
- The unit price reverts back to the original unit price quoted if the price adjustment calculation at each successive six month interval results in a percentage change that is not at least five (5) percent (increase or decrease) of the original unit price quoted by the successful bidder.
- Prices for release orders will be the price established for the six month time frame within which the release(s) is dated, regardless of delivery date.
- If, for any reason, the index being utilized under this contract is discontinued for any reason, NYCT will select a new index to be applied.

EXAMPLE A:

A. Successful Bidder's Unit Price: \$5.00

B. % Of Item Containing Steel: 50%

- C. Portion of the Item's Price subject to a price adjustment: \$2.50
- D. Scrap Steel index on day of bid opening: 150
- E. Scrap Steel index at the six-month anniversary date of the bid opening: 180
- F. Percent change calculation: $(E - D) \div D = \text{percentage change}$.
For example: $(180 - 150) \div 150 = .20$
- G. F X C: $\$2.50 \times .20 = \0.50
- H. New Unit Price for next six months: $A + G = \$5.50$

EXAMPLE B:

- A. Successful Bidder's Unit Price: \$12.00
- B. % Of Item Containing Steel: 100%
- C. Portion of the Item's Price subject to a price adjustment: \$12.00
- D. Scrap Steel index on day of bid opening: 75
- E. Scrap Steel index at the six-month anniversary date of the bid opening: 30
- F. Percent change calculation: $(E - D) \div D = \text{percentage change}$.
For example: $(30 - 75) \div 75 = -0.60$
- G. F X C: $\$12.00 \times -0.60 = -\7.20
- H. New Unit Price for next six months: $A + G = \$4.80$

EXAMPLE C:

- A. Successful Bidder's Unit Price: \$24.00
- B. % Of Item Containing Steel: 75%
- C. Portion of the Item's Price subject to a price adjustment: \$18.00
- D. Scrap Steel index on day of bid opening: 162
- E. Scrap Steel index at the six-month anniversary date of the bid opening: 194
- F. Percent change calculation: $(E - D) \div D = \text{percentage change}$.
For example: $(194 - 162) \div 162 = .1975$
- G. F X C: $\$18.00 \times .1975 = \3.555
- H. New Unit Price for next six months: $A + G = \$27.555$

2.4.3.2 Cost Reimbursement Contracts

REQUIREMENT

Paragraph 10.d of FTA Circular 4220.1E requires that Federal cost principles (described in FAR Part 31) be used to determine the allowability of costs incurred on third party cost-reimbursement contracts financed with Federal funds. However, grantees may reference their own cost principles if they comply with Federal cost principles.

Paragraph 10.e of FTA Circular 4220.1E prohibits the cost-plus-a-percentage of cost method of contracting.

DISCUSSION

The cost-reimbursement contract is one that provides for payment of allowable incurred costs, to the extent prescribed in the contract. These contracts establish an estimate of total cost for the purpose of obligating funds and establishing a ceiling on expenditures that the contractor may not exceed without the approval of the contracting officer. Cost-reimbursement contracts are suitable for use when the uncertainties of performance do not permit costs to be estimated with sufficient accuracy to use a fixed-price contract.

Completion vs. Term Form- Two forms of cost-type contracts are available for describing the contractor's responsibility: the completion form and the term form. The *completion form* describes the scope of work by specifying an end product or definite goal. This form requires the contractor to complete the work and deliver the end item as a condition for payment of the entire fee. If the contractor fails to complete the contract, the buying Agency is entitled to a reduction in the amount of the fee. This would mean that if the contractor expended all the estimated cost and the work was not complete, and the Agency decided not to add more funds (estimated cost) to the contract, the contractor would not be entitled to full payment of the original fixed fee. The term form of contract describes the work in general terms and obligates the contractor to devote a specified level of effort for a stated time period. The fixed fee is payable at the expiration of the stated time period if the contractor has indeed furnished the specified level of effort. Extension of the time period is a new acquisition involving new cost and fee agreements (unless the original time period expires and there remains a level of effort to be provided, in which case the Agency may have the right to extend the period of performance so as to use the remaining level of effort).

Federal Cost Principles - FTA Circular 4220.1E Paragraph 10.d requires grantees to use Federal Cost Principles to determine allowable costs under cost-type contracts. 49 CFR 18.22, *Allowable Costs*, defines the Federal Cost Principles for various types of contractors. Contracts with commercial concerns are required to use FAR Part 31 Cost Principles, or grantees may use their own cost principles if they are consistent with FAR Part 31.

Allowable Cost and Payment Clause – Cost-type contracts will need to include a clause or clauses addressing several important issues regarding the payment of allowable costs. The clause used in Federal contracts would be useful as a guide concerning the issues that need to be addressed.³⁷ The matters covered by the FAR clause, and that should be defined in a grantee’s contract (though the FAR clause itself is not required), would include:

- a. The frequency of contractor billings for costs incurred;
- b. The reference to subpart 31.2 of the FAR for determining allowability of costs;
- c. Whether the contractor must have actually paid for the supplies or services used in contract performance before it submits an invoice, or whether the contractor may invoice for costs incurred but not yet paid;
- d. The provisional billing rates to be used during contract performance for indirect costs prior to establishment of final audited rates;
- e. The procedure to be followed in submitting cost proposals for establishing final indirect cost rates for the contract;
- f. The requirement that final costs (direct and indirect) be audited before final payment;
- g. The Contractor’s assignment to the grantee of any refunds, rebates or credits accruing to the Contractor that are allocable to costs for which the contractor has been paid;
- h. A release discharging the grantee from any future claims arising out of the contract.

Fixed Fee – It is important that the contract contain a clear statement as to how the contractor will be paid the fixed fee called for in the contract (i.e., how the fee is earned). The Federal clause states that the contractor is to be paid the fixed fee “for performing this contract.”³⁸ Grantee CPFF contracts should be clear in defining the contractor’s performance responsibility for earning the fee. For example, if it is a completion form contract, then the contractor must complete the statement of work and deliver all required documents. If, however, it is a term form contract, the contractor must furnish the required level of effort called for in the contract during the period of performance in order to earn the full fee. It should be noted that a cost-type contract, while it is a “best efforts” contract in terms of entitlement to payment of allowable costs, does in fact require actual performance for entitlement to payment of the full fixed fee. Anything less than complete

³⁴ - FAR 52.216.-7 – *Allowable Cost and Payment*.

³⁵ - FAR 52.216-8 – *Fixed Fee*.

performance entitles the grantee to a credit in the fee based on the percent of actual completion of the work called for in the contract. In this regard a CPFF contract operates very much like a fixed price contract in requiring complete performance by the contractor for full payment of the fixed fee. An example of a payment of fixed fee clause used by a Federal agency that illustrates this principle of entitlement to fee for performance is that of NASA, which reads: “The fixed fee shall be paid in monthly installments based upon the percentage of completion of work as determined by the Contracting Officer.” Grantees are encouraged to incorporate a *Payment of Fixed Fee* clause in their contracts that clearly states the contractor’s responsibility to perform the contract in order to be paid the fee. The clause should also state how the fee will be paid on a monthly/incremental basis (e.g., based on a percentage of completion of work as determined by the Contracting Officer). It is also suggested that the grantee consider a *fee withholding provision* that provides for a certain percentage of the fee to be withheld until the contractor completes and delivers all documentation called for in the contract. Once again grantees may want to review the Federal clause for guidance.³⁹

Advance Agreements – Certain types of costs may be allowable according to the cost principles, and yet present difficulties in determining after-the-fact what is reasonable for the particular circumstances of any given contract.⁴⁰ It is advisable to anticipate these areas of potential conflict and negotiate advance agreements before the costs are incurred (this may be before or during the contract but should always be before incurrence of the costs involved). The types of costs that tend to be problematic, and for which advance agreements would be particularly helpful, would include:

- a. Pre-contract costs;
- b. Royalties and other costs for use of patents;
- c. Compensation for personal services, including location allowances, hardship pay, off-site pay, and incentive pay;
- d. Time charged directly to the contract by corporate officers and senior management personnel who normally charge their time to indirect cost accounts;
- e. Compensation for professional consultants (e.g., legal, accounting and engineering);
- f. Travel and personnel relocation costs;

³⁶ - FAR 52.216-8 – *Fixed Fee*.

³⁷ - Advance agreements cannot provide for the allowability of costs that the cost principles have determined to be unallowable (e.g., interest).

- g. Severance pay to employees on support services contracts;
- h. Training and education costs;
- i. General and administrative costs (e.g., corporate, division or branch allocations) attributable to the general management, supervision and conduct of the contractor's business as a whole). These costs are especially important in construction, job-site, and architect-engineer contracts.

Approval of Subcontractors – There will probably be situations when a grantee may wish to require their prime contractors on CPFF contracts to submit subcontracts for the grantee's consent prior to award of the subcontract by the prime. Grantees will want to exercise due diligence in the management and administration of CPFF contracts where the grantee bears much of the risk of poor performance, including cost overruns, for both the prime contractor and the prime's subcontractors. For guidance in this area of grantee review and consent to subcontracts, see the BPPM Section 9.4 – *Approval of Subcontractors*.

Adequacy of Contractor's Accounting System - It is important to determine the adequacy of the contractor's accounting system for cost-type contracts before awarding such a contract.⁴¹ Care must be taken to assure that the accounting system can properly identify contract costs by segregating them from the costs of other jobs in the accounting records. Likewise it is important that the system of allocating indirect costs to jobs/contracts produces a distribution of costs which is fair and reasonable.

2.4.3.3 Time and Materials Contracts

REQUIREMENT
<p>Paragraph 7.j of FTA Circular 4220.1E states:</p> <p>j. <u>Use of Time and Materials Contracts</u>. Grantees will use time and materials contracts only:</p> <ol style="list-style-type: none"> 1. After a determination that no other type of contract is suitable; and 2. If the contract specifies a ceiling price that the contractor shall not exceed except at its own risk.

⁴¹ - If a cost type subcontract is to be awarded by the prime, the subcontractor's accounting system must also be adequate.

DISCUSSION

Time-and-materials (T&M) contracts may be used for acquiring supplies or services. These contracts provide for the payment of labor costs on the basis of fixed hourly billing rates which are specified in the contract. These hourly billing rates would include wages, indirect costs, general and administrative expense, and profit. There is a fixed-price element to the T & M contract - the fixed hourly billing rates. But these contracts also operate as cost-type contracts in the sense that labor hours to be worked, and paid for, are flexible. Materials are billed at cost, unless the contractor usually sells materials of the type needed on the contract in the normal course of his business. In that case the payment provision can provide for the payment of materials on the basis of established catalog or list prices in effect when the material is furnished. These contracts also may provide for the reimbursement of material handling costs, which are indirect costs, such as procurement, inspection, storage, payment, etc. These indirect costs are billed as a percentage of material costs incurred (similar to the billing of overhead costs as a percentage of direct labor). Such material handling costs must be segregated in a separate indirect cost pool by the contractor's accounting system and must not be included in the indirect costs included as part of the fixed hourly billing rate for direct labor. It would always be prudent to obtain a pre-award audit of the contractor's accounting system to determine the adequacy of the system to properly segregate material handling costs from other overhead costs being billed with the fixed hourly rates for labor.

Use Only When No Other Type Will Work - *The FTA Circular requires that you make a determination, before using this type of contract, that no other type of contract is suitable.* The reason why this type of contract is the least preferable of all allowable types is that it creates a disincentive for the contractor to complete the contract in a timely manner. Since each labor hour expended carries with it a profit (and a predetermined overhead charge) built into the fixed hourly rate, the contractor is motivated to work as many hours as possible. There is no incentive to complete the contract quickly, and thus minimize total costs to the buyer. (In a CPFF contract the fee is fixed in dollar terms at the outset of the contract, allowing the contractor to earn the fee whenever the work is complete, thus providing some incentive to finish the contract as quickly as possible.)

Subcontracts - If your T&M contract will involve subcontracts for large dollar items or services, you will need to evaluate whether the contractor's material handling costs should be charged to these large dollar subcontracts as an indirect cost (as an overhead type of charge), because to do so may result in an inequitable allocation of these indirect costs to your contract. This is because the large dollar value subcontract will absorb a far greater proportion of the indirect cost pool than it should, based on a reasonable assessment of the material handling costs actually generated by the subcontract versus those generated by all other materials procured by the contractor for other customers. When this situation arises you will want to negotiate an advance agreement with the contractor as to the charging of material handling costs. It may be more equitable to pay for the cost of subcontract administration on a direct charge basis; i.e., the labor cost for the subcontract

administrator charged directly. Or you may want to negotiate a reduced indirect material handling cost rate to be charged to the subcontract (which represents a more equitable allocation of the material handling costs actually generated by the subcontract).

Ceiling Price - You will need to specify the Agency's maximum obligation (ceiling price) in the contract; i.e., the limitation of the Agency's financial obligation which the total funds allotted to the contract will allow. The contractor may not exceed this funding limitation without your written authorization in the form of a contract modification adding more funds.

Proper Agency Surveillance - This type of contract requires a high degree of Agency surveillance during performance in order to provide reasonable assurance that efficient methods and cost controls are used by the contractor.

Avoid Cost Plus Percentage of Cost Arrangements - As discussed below under CPPC contracts, care must be taken not to structure an agreement which compensates the contractor at a *predetermined percentage (for overhead or profit) of actual costs incurred*. If you break out the overhead and profit from the labor rate and call for them to be billed as separate rates based on actual labor costs incurred, you will have an illegal cost-plus-percentage-of-cost situation. Overhead and profit must be recovered as a part of the fixed hourly billing rate for labor, as discussed above. You may allow the contractor to bill material handling costs as an indirect cost rate applied to actual material costs, provided the contractor segregates material handling costs in the accounting system. You should conduct a contract cost close-out audit of the material handling cost pool and adjust the rates billed to those actually incurred (as you would do for an overhead rate on a cost-reimbursement contract). However, where the actual material handling costs are not large, Agencies may elect to close out the T&M contract without a final cost audit of the material handling cost pool.

2.4.3.4 Labor Hour Contracts

DISCUSSION

Labor hour contracts are a variation of the time and materials contract, differing only in that materials are not supplied by the contractor. You should use this type of contract only when no other would be suitable, and you need to document your determination if you choose to use this type of contract.

2.4.3.5 Cost Plus Percentage of Cost Contracts (CPPC)

DISCUSSION

FTA Circular 4220.1E clearly prohibits the use of this contracting method. CPPC contracts are prohibited by statute and FTA may not grant waivers for grantees to use this

method of contracting.⁴² Grantees must not only avoid using this type of contract themselves, they must also insert clauses in their cost-type contracts that prohibit their prime contractors from using CPPC subcontracts. Care must be taken to avoid any kind of agreement whereby the contractor's fee would be increased automatically with increases in a particular cost element. Generally, any contractual arrangement whereby the contractor is assured of greater profits by incurring additional costs will be held illegal. The obvious problem with this form of contract is that profits increase in proportion to dollars spent, thus providing a positive incentive to inefficiency. *To fall within the definition of CPPC, the agreement must provide that the contractor's compensation, or some portion of it, will be computed as a percentage of some of the costs of performance.* So for example, it is not permissible to pay for overhead (indirect) costs by establishing a predetermined percentage in advance and stipulating that overhead expense will be reimbursed as a stated percentage of some other cost such as direct labor. The problem with this arrangement is that such compensation may be greater than the contractor's actual and final overhead expenses, which means the payment becomes additional profit. In the same way, a time-and-materials contract which called for payment of overhead and profit at predetermined percentages of 15% and 10% of cost incurred was held to be illegal.⁴³

This is not to prohibit *provisional overhead rates* which are audited and adjusted to actuals at the end of the contract, nor does it prohibit provisional or interim fee payments based on costs being incurred, because the total fee is fixed at the inception of the contract and will not increase with increases in actual costs. It is also permissible to pay a material handling charge as a percentage of material costs incurred if the contractor has a separate material handling cost pool. This indirect cost pool should be audited after contract completion, and the billed rates should be adjusted to actuals based on the audit.

Another way of avoiding the problem is to include overhead and profit in fixed rates for labor. This is done in time-and-materials and labor hour contracts where contractors are paid one rate for each hour of labor performed. This type of arrangement is not illegal, but it still tends to operate as a disincentive to control cost (more hours worked equals more profits), and for this reason should be avoided whenever other contracting options exist.

2.4.4 Payments

Payment is the buyer's most important contractual obligation. Payments are the principal source of funds during contract performance allowing the contractor to continue working. Delays in payments can have a serious effect on the contractor's ability to continue performance. When less than full payment is made of a contractor's invoice, the terms "*withholding*" and "*setoff*" are

³⁹ - 10 U.S.C. 2306(a) and 41 U.S.C. 254(b).

⁴³ - 46 Comp. Gen. 612 (B-159713) (1967).

commonly used to describe the refusal to make full payment. The term "*final payment*" usually implies that both parties to the contract have fulfilled all of their responsibilities.

There are two major types of contract payments: (1) payments for completed items of work (including *partial payments*), and (2) *progress payments* based on costs incurred or upon a percentage of completion of the work. Another type of payment, which is used only under extraordinary circumstances, is payment in advance of doing the work (*advance payments*).

2.4.4.1 Payment of the Price

Payment of the contract price is due upon completion of the work and submission of the contractor's invoice. When the contract authorizes delivery or performance in increments, payment of a portion of the contract price may be made before the contract is completed. Such payments are referred to as *partial payments*. Partial payments are not considered to be a financing technique but they can be an important means of providing funds for performance, and they should be used whenever the contract can be structured in terms of incremental stages or deliveries and there are appropriate acceptance criteria for the supplies, services or completed subsystems of a larger system. In other words, when the Agency can safely inspect, test and accept these units and make a "final" payment for those items delivered, without having to worry about their functioning as part of a larger system, then partial payments should be established in the contract.

2.4.4.2 Advance Payments

REQUIREMENT
FTA Circular 4220.1E, Paragraph 12.a, "Advance Payments," states: "FTA does not authorize and will not participate in funding payments to a contractor prior to the incurrence of costs by the contractor unless prior written concurrence is obtained from FTA. There is no prohibition on a grant recipient's use of local funds for advance payments. However, advance payments made with local funds before a grant has been awarded, or before the issuance of a letter of no prejudice or other pre-award authority, are ineligible for reimbursement."

DISCUSSION

Advance payments are actually a method of financing and not a method of paying for work completed or items delivered. They are made prior to a contractor's incurrence of costs in order to enable the contractor to perform the contract. The Federal Government places severe restrictions on its own use of advance payments (FAR coverage may be found at FAR Subpart 32.4). As indicated below in the paragraph "Exceptions to the Prior Approval requirement," when advance payments are generally accepted industry practice, FTA does not require prior approval.

The FTA Circular requires FTA approval before grantees may use this form of financing on third-party contracts. However, the Circular clearly restricts the advance payment prohibition to those contracts where the grantee is using FTA funds for the advance payment. If the advance payments are being made with non-FTA funds, then FTA has no involvement in the decision and need not approve of it. Grantees are free to use local funds to finance their contractors in this manner if they deem it appropriate. The Circular also covers the situation where a grantee may wish to use local funds for advance payments before a grant has been awarded or before FTA has issued a letter of no prejudice to the grantee. In these cases FTA will not reimburse the grantee later for such payments.

Exceptions to the Prior Approval Requirement – The FTA requirement for prior approval of advance payments does not apply to transactions where it is “generally accepted industry practice” to pay in advance. In these situations, grantees may make advance payments without prior FTA approval. These situations would include (but not necessarily be restricted to) the following types of transactions:

- 1. Rent**
- 2. Tuition**
- 3. Insurance premiums**
- 4. Subscriptions to publications**
- 5. Software licenses**
- 6. Construction mobilization costs**
- 7. Public utility connections**

Best Practices

New York City Transit (NYCT) completed a major procurement for rail cars in which there were two payment schedules in the Request for Proposals (RFP). The first was a payment schedule containing milestone payments totaling 20% of the price of cars paid prior to the acceptance of the first test trains. A second or "Alternate" payment schedule had milestone payments of 42% of the price of cars paid prior to the acceptance of the first test trains. Contractors were required to submit proposals based on both payment scenarios, as well as any alternative payment plan they wished to propose. NYCT requested that the Federal Transit Administration (FTA) provide written concurrence to make advanced payments up to approximately 45% of the price of the cars if there was appropriate consideration for greater payments made up front. In addition, NYCT required that an Advanced Payment Bond or Letter of Credit be provided in the full amount of the price of cars paid prior to the acceptance of the first test trains. FTA provided their written concurrence to NYCT's request.

In order to evaluate the proposals received from the contractors, NYCT performed a Net Present Value analysis of the 20%, 42% and other contractor alternatives in order to quantify the value of the different payment schedules. The analysis took into account the cost of money and all aspects

of the timing of invoicing, starting with receipt of the invoice through the time for actual payment. The Net Present Value analysis showed that appropriate consideration was given in the winning proposal and NYCT accepted it. An Advanced Payment Bond or Letter of Credit was required to protect all payments for cars prior to acceptance of the test trains.

This case shows a very conservative approach as to what is defined as an Advance Payment. The Advance Payment is considered to be the amount paid to the contractor for cars until the first trains are accepted by NYCT. The contractor is required to design, build and test the first 18 cars which means that the contractor is incurring substantial costs during this period. These costs include engineering and design hours, supervision, ordering materials, set-up of the production line, etc. The contract has a mobilization payment of 3% upon award of the contract and approval of the Advance Payment Bond or Letter of Credit. Thereafter, the contract has milestone (or completion-type progress payments) for various submissions of designs, approvals of designs, starting of tests, completion of tests, etc. A more liberal approach would define the mobilization cost of 3% to be considered an Advance Payment and the rest of the payments to be considered progress payments.

2.4.4.3 Progress Payments

REQUIREMENT

Paragraph 12.b of FTA Circular 4220.1E states:

- b. Progress Payments. Grantees may use progress payments provided the following requirements are followed: ⁴⁴
 - 1. Progress payments are only made to the contractor for costs incurred in the performance of the contract. ⁴⁵
 - 2. The grantee must obtain adequate security for progress payments. Adequate security may include taking title, letter of credit or equivalent means to protect the grantee's interest in the progress payment. ⁴⁶

⁴⁴ FTA has redrafted the paragraph related to progress payments to account for the practical reality that taking title to work in progress may not be desirable in some cases.

⁴⁵ Progress payments in construction contracts may be made on a percentage of completion method in accordance with 49 CFR 18.21(d). This payment method may not be used in non-construction contracts.

⁴⁶ "Adequate security" should reflect the practical realities of different procurement scenarios and factual circumstances. For example, adequate security may consist of taking title to work in progress in a rolling stock procurement, receiving a draft document in a consulting contract, or receiving some portion of recurring services under a services contract. Grantees should always consider the costs associated with this security (e.g., bonds or letters of credit must be purchased in the commercial marketplace) and the impact those costs have on the contract price, as well as the consequences of incomplete performance as they consider what constitutes adequate security for a given procurement.

DISCUSSION

Progress payments are a means of financing contractors that are performing *fixed-price* contracts (a) under unusual circumstances where a contractor cannot get private financing at a reasonable cost, or (b) where the commercial practice for the item being procured is for the buyer to provide financing (e.g., rolling stock procurements).⁴⁷ There are two major types of progress payments: those based on costs and those based on a percentage of completion of work. Both types are considered contract-financing methods (see FAR 32.102). Progress payments may be appropriate if:

- The contractor will not be able to bill for the first-delivery of products, or other performance milestones, for a substantial time after work begins. In Federal contracting practice, the usual contract duration for using progress payments is four months or more for small businesses and six months or more for others, and
- The contractor's expenditures prior to delivery of the first items will have a significant impact on the contractor's working capital.⁴⁸

Progress payments are to be distinguished from *partial payments*. *Partial payments* are payments made, as authorized by the contract, upon delivery and acceptance of one or more complete units (or one or more distinct items of service) in accordance with the contract specifications, even though other quantities remain to be delivered. Note that *partial payments* are for completed units, whereas *progress payments* are for uncompleted work-in-progress.

Because the grantee is making payments for uncompleted, non-functional units, FTA requires that adequate security be obtained from the contractor protecting the grantee's (and FTA's) investment in case the contractor fails to complete the deliverable units. The form of security is to be determined by the grantee based on what is in the best interests of the grantee in the particular circumstances. (See footnote above re *adequate security*.)

Progress Payments Based on Percentage of Completion - The Federal Government authorizes progress payments on its contracts based on a percentage or stage of completion of the work. This type of progress payment is standard for construction contracts for all Federal agencies.⁴⁹ 49 CFR Part 18.21(d) allows grantees and subgrantees to use the percentage of completion method to pay their construction contractors, which is consistent with the regulations for Federal contracts. *However, grantees may not use the percentage of*

⁴⁷ - The term *progress payments* does not apply to cost-type contracts, and is to be distinguished from *advance payments*, which are payments made before work begins (see BPPM section 4.4.4.2).

⁴⁸ - Both of the conditions noted are almost always present on construction projects.

⁴⁹ - FAR Clause 52.232-5 *Payments Under Fixed-Price Construction Contracts*.

*completion method for non-construction contracts. For those contracts, progress payments based on costs incurred must be used.*⁵⁰

Contract Clause – Grantees should refer to the FAR clause at FAR 52.232-16 for guidance on the specific issues that need to be addressed in the progress payments clause and ensure that their agency’s clause adequately covers the important issues, including:

- **Computation of amounts** – percentage of total costs, definition of “costs” to be included in the calculation (i.e., only those actually paid by the contractor, incurred but not paid, etc.).
- **Liquidation** – the method of linking value received to payments made.
- **Reduction or suspension of payments** – the circumstances under which the grantee may reduce or suspend progress payments.
- **Title** – this provision should define the property considered allocable to the contract (parts, materials, special tooling, special test equipment, drawings and technical data, etc.) and the party that retains title to the property/work-in-process for which the progress payments are made.
- **Risk of loss** – the contract should be clear as to which party assumes the risk of loss to contract property and work-in-progress before final acceptance of the units. *In the Federal clause, the contractor assumes the risk of loss even though title to all property acquired under the contract vests in the Government.*
- **Progress payments to subcontractors** – this provision needs to define the circumstances under which the prime contractor must make progress payments to fixed-price subcontractors, and the subcontract terms to be included (covering the same issues as the prime contract’s progress payment clause).
- **Adequate accounting system/reports** – the contract must require an adequate job-order accounting system to be maintained that properly accounts for the costs of the job even though the contract is fixed-price. This provision should also give the grantee the right to require certain reports or other data in support of the contractor’s invoices.
- **Access to records** - this provision must give the grantee the right to conduct audits of costs claimed in progress payment invoices.

⁵⁰ - 49 CFR 18.21(d) authorizes the percentage of completion method for construction contracts only.

2.4.4.4 Withholding and Final Payment

DISCUSSION

A number of contract provisions expressly authorize the withholding of payments. See, for example, the Davis-Bacon Act Clause ⁵¹ or the Contract Work Hours and Safety Standards Act Clause. ⁵² The standard Federal government clause for the payment of fixed fee on CPFF contracts calls for a 15% withholding of the fixed fee until the contractor submits a certified final indirect cost rate proposal and otherwise complies with the final deliverable documentation requirements of the contract (e.g., delivery of the final report concerning inventions made under the contract).

Limitation on Withholding - In the event you decide to withhold payments on a contract, you must take care that the amount of money withheld bears a reasonable relationship to the unsatisfactory work; in other words, the amount withheld must represent a reasonable estimate of the contractor's potential liability. ⁵³ Moreover, the amount withheld must not be so great that it impairs the contractor's ability to perform. ⁵⁴ You may also wish to consider a clause limiting the amount of payments that may be withheld in total under all clauses of the contract, as is the practice on Federal contracts. ⁵⁵

Final Payment - Final payment is made to the contractor when it has satisfied all of the deliverable requirements called for by all provisions of the contract, including all of the required documentation. Final payment signifies that the performance obligations of both parties to the contract have been satisfied. Before making a final payment, therefore, you should obtain a signed release from the contractor releasing the Agency from any further claims by the contractor. You should also ensure that the program office has signed a receiving and inspection report certifying that all deliverable items have been received, inspected, and accepted as being in conformance with the contract specifications.

Retainage on Construction Contracts - For a discussion of retainage on Construction Contracts, see BPPM, section 10.1, paragraph entitled “Retainage and the Problems of Contractors who Quit Work.”

⁵¹ - Appendix A.1, Clause 16.

⁵² - Appendix A.1, Clause 17.

⁵³ - Norair Eng'g Corp., GSBCA 3539, 75-1 BCA, paragraph 11,062.

⁵⁴ - Bailey v. Secretary of Labor, 810 F. Supp. 261 (D. Alaska 1993).

⁵⁵ - FAR Clause 52.232-9.

2.4.5 Indefinite Delivery Contracts

When the exact times or the exact quantities of future deliveries are not known at the time of contract award, or when the shelf life of the product needed is short, grantees may wish to consider some form of indefinite delivery (ID) contract. Indefinite delivery contracts offer a number of advantages that will be discussed below with each type of ID contract. As a general rule, however, ID contracts permit the grantee to maintain inventories at minimum levels and provide flexibility with respect to shipments to various user locations. It also facilitates decentralized ordering by users at different locations.

There are three types of indefinite delivery contracts:

1. Definite-quantity contracts,
2. Requirements contracts, and
3. Indefinite quantity (IQ) contracts (commodities)/Task order contracts (services).

2.4.5.1 Definite-quantity Contracts

A *definite-quantity contract* is one which provides for delivery of a definite quantity of specific supplies or services during a time period which is fixed, with deliveries or performance to be scheduled at designated locations at the time each order is placed under the contract. This type of contract is appropriate when the grantee knows in advance how many total items it will need during the contract period but is uncertain as to the exact time or the exact amount of its needed deliveries to any given location. The supplies or services called for by this type of contract must be regularly available from the supplier or available after a short lead time. For guidance as to ordering quantities above the quantity stated in the contract, see section 2.4.5.3 below, paragraph entitled *Orders above the stated maximum*.

2.4.5.2 Requirements Contracts

A *requirements contract* is one in which the grantee commits to place all of its requirements for a particular item or service with a particular contractor during a specified contract period, with deliveries or performance to be scheduled at the time each order is placed under the contract. This type of contract is used when quantities and/or the times of needed deliveries are uncertain. It permits flexibility to the grantee in both quantities and delivery schedules. It may also shorten the delivery time of a product that has a longer production lead time because the contractor knows that the grantee will obtain all of its requirements under its contract and in this situation contractors may be willing to maintain some level of inventory. A *requirements contract* also allows for the ordering of supplies or services *after requirements become known*. It differs from the *indefinite quantity contract* in that it promises the contractor that all of the grantee's requirements for the particular item will be procured from the contractor, whereas the *indefinite quantity contract* makes no promise of this nature and may in fact be one of several (multiple) contracts awarded for the same item or service. The *requirements contract* may produce better prices for the grantee in that the contractor is assured from the beginning that all supplies or

services of the type called for will be procured from the contractor during a stated period of time. The disadvantage to the grantee is that it will be committed to order all of the designated supplies at the contracted price even if it later learns that the supplies can be ordered elsewhere more cheaply.

Estimated total quantity – When this type of contract is used, grantees should state a realistic estimated total quantity in the solicitation and in the resulting contract. This estimate is not a guarantee by the grantee that it will buy the estimated quantity, but is a good faith estimate of what the requirements are likely to be. The estimate should be based on records of previous requirements as well as the most current information available.

Maximum and minimum quantities – The contract should protect the contractor by stating a maximum limit of the contractor's obligation to deliver. This maximum limit may be expressed for the entire contract, as well as for each individual order and for any particular period of time within the contract period of performance. Minimum order amounts may also be expressed for each order placed and for the contract as a whole. Minimum order amounts, however, are not required for this type of contract because the grantee's commitment to buy its requirements from the contractor represents the legal consideration necessary to make the contract binding. For guidance as to ordering quantities above the maximum amount stated in the contract, see section 2.4.5.3 below, paragraph entitled *Orders above the stated maximum*. It should be noted that the minimum and maximum quantities in a *requirements contract* are for the contractor's protection and do not necessarily limit the grantee's procurement authority to order more units (since the grantee has contracted to award *all of its requirements* to the contractor). Thus the grantee's authority to add units to a requirements contract without re-competition is founded on its initial promise to award all of its requirements to the successful contractor and such additions would not constitute an impermissible increase in scope (as would be the case with an *indefinite-quantity contract* when the grantee seeks to add units above the stated maximum – see below).

2.4.5.3 Indefinite-quantity Contracts

An *indefinite-quantity contract* is one that provides for an indefinite quantity of supplies or services, within limits that are stated in the contract, to be provided during a time period that is fixed in the contract. Deliveries of the supplies or performance of the services are scheduled by placing orders with the contractor. This type of contract may be appropriate when the grantee cannot predetermine, above a specified minimum, the precise quantity of supplies or services that will be required during the contract period, and it is inadvisable for the grantee to commit itself for more than a minimum quantity. *Indefinite-quantity* contracts offer several advantages:

1. minimum inventory levels of supplies can be maintained,
2. shipments can be direct to users in various locations,
3. they permit flexibility in both quantities and delivery scheduling,
4. supplies or services can be ordered after requirements become known, and
5. the grantee's obligation is limited to the minimum quantity specified in the contract.

Minimum and maximum quantities – To ensure that the contract is binding, a minimum number of units must be stated in the contract, and it must be more than a nominal quantity. There must also be a stated maximum of units that may be ordered. Indefinite-quantity contracts should never be “open ended,” where no maximum quantity is stated. This practice has led to serious problems when agencies attempt to “piggy-back” the open ended contracts of other agencies by ordering quantities that were never included in the original competitive process. (See section 6.3.3--*Joint Procurements of Rolling Stock and “Piggybacking.”*) The contract may also state maximum or minimum quantities that may be ordered under each task or delivery order and the maximum that may be ordered during a specified period of time within the contract’s period of performance.

Orders above the stated maximum – If it becomes necessary to order quantities above the maximum stated in the contract, (which would be the number of units included in the original competitive process), such orders should generally not be processed as “change orders,” (“change orders” must be within the scope of the original competition), but should be processed as “new procurements.” These new procurements may either be competed or, if circumstances warrant, processed as “noncompetitive procurements” in accordance with the grantee’s internal approval process for noncompetitive (“sole source”) procurements. *Grantees should anticipate the possibility of needing additional quantities when they compete the contract award initially and, if necessary, include option provisions for additional quantities in the original competitive bidding. In this way if additional quantities are needed they may be procured under the original contract without having to justify them as a “sole source” add-on.*

Multiple Award/Task Order contracts – Grantees may wish to consider making multiple contract awards for the same or similar supplies or services under a single competitive solicitation. This may be appropriate in order to ensure the quality or timeliness of deliveries by not limiting the grantee to a single supplier who may not perform according to the grantee’s expectations or needs or who may not be able to meet peak delivery requirements. In this event, another supplier is immediately available to assure that needs will be met.

The Federal Acquisition Regulations (FAR), Subpart 16.504 – *Indefinite-Quantity Contracts*, addresses the issue of multiple awards in 16.504(c). The FAR expresses a preference for making multiple awards of indefinite-quantity contracts under a single solicitation for the same or similar supplies or services if (i) a recurring need for the supplies or services is anticipated, and (ii) the agency cannot predetermine its needs above a specified minimum, and (iii) when it would be inadvisable for the agency to commit itself for more than a minimum quantity. The FAR envisions the award of multiple *task order contracts* in which individual task orders would be issued following competitive solicitations to the original awardees.

If multiple awards are made, grantees must advise prospective bidders of the procedures that will be used in issuing orders to the contractors selected for award, including the criteria that will be used to provide the selected contractors with a fair opportunity to be considered for each order issued. The criteria may include such items as past performance on earlier tasks or orders issued under the contract, quality of deliverables, timeliness of deliveries, and other factors considered

relevant by the grantee. It is important that price or cost be one of the selection factors considered for each order awarded. If the original contract did not establish the price for the supply or service, the grantee will have to solicit cost or price proposals for each order.

The FAR does provide for exceptions to the requirement that all awardees be provided a fair opportunity for each order awarded. These would include situations where –

- a. The agency's needs for the supplies or services are so urgent that providing a fair opportunity would result in unacceptable delays;
- b. Only one awardee is capable of providing the supplies or services because they are unique or highly specialized;
- c. The order must be placed on a sole-source basis in the interest of economy and efficiency as a logical follow-on to an order already issued under the contract, provided that all awardees were given a fair opportunity to be considered for the original order; and
- d. It is necessary to place an order to satisfy a minimum guarantee.

Multiple awards will not be advisable when:

- a. state law prohibits,
- b. more favorable terms will be provided if a single award is made,
- c. the cost of administering multiple contracts outweighs any potential benefits from making multiple awards, and
- d. tasks likely to be ordered are so integrally related that only a single contractor can reasonably perform the work.

Chapter 3

3 - Specifications

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- 3.4 Specifications for Construction (1/98)
- 3.5 Statements of Work for Services (1/98)

3.0 OVERVIEW

REQUIREMENT
<p>§ 8.c (1) of FTA Circular 4220.1E requires that all solicitations shall:</p> <p>(1) Incorporate a clear and accurate description of the technical requirements for the material, product, or service to be procured. Such description shall not, in competitive procurements, contain features that unduly restrict competition. The description may include a statement of the qualitative nature of the material, product, or service to be procured and when necessary, shall set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use. Detailed product specifications should be avoided if at all possible. When it is impractical or uneconomical to make a clear and accurate description of the technical requirements, a "brand name or equal" description may be used as a means to define the performance or other salient characteristics of a procurement. The special features of the named brand which must be met by offerors shall be clearly stated.</p> <p>§ 15 of the Master Agreement states that:</p> <p>d. <u>Exclusionary or Discriminatory Specifications</u>. Apart from inconsistent requirements imposed by Federal statute or regulations, the Recipient agrees to comply with the requirements of 49 U.S.C. § 5323(h)(2) by refraining from using any Federal assistance awarded by FTA to support procurements using exclusionary or discriminatory specifications.</p> <p>e. <u>Bus Seat Specifications</u>. A State or local government recipient may use specifications conforming with the requirements of 49 U.S.C. § 5323(e) to acquire bus seats.</p>

DISCUSSION

As a recipient of public funds you will have to keep in mind that you represent the government, whose objectives in spending taxpayers' money will always include, as one of its goals, the goal of full and open competition. It is easy to lose sight of this under the pressure of completing a project on time. Many programs in your domain have political sensitivity and media visibility. The temptations will be great to "get something out now," and it will always be easier to respond to the immediate pressure than to do a careful and thorough job at the outset. But time taken here, in the careful research and drafting of the specifications, will invariably reward you with a better product, at a lower cost, and with far fewer claims and delays during the life of the project. Another age-old problem in this area of drafting specifications is the desire to push the state of the art to a new level, to have the best possible system, regardless of cost. Government organizations tend to be applauded for the visible quality of the things they do, whether it's their services, or major transit systems. But against these real-life pressures stands the Federal and State Government policy to define the "minimum needs" and to avoid specifications which might unduly restrict competition. We need to remind ourselves that our industrial suppliers are also taxpayers whose tax dollars are helping to finance this procurement; as such they are to be given every opportunity to compete for the work they are helping to finance.

Technical Specifications and Statements of Work must clearly describe the products and services to be procured in terms which will permit full and open competition and which will meet the buying agency's minimum essential needs.

3.1 TYPES OF SPECIFICATIONS AND RISKS

DISCUSSION

Specifications may be very detailed in describing the product or work to be done, or may simply require an end result, or may contain combinations of these two approaches. There are different levels of risks and responsibilities inherent in these different types of specifications. As a general rule the more design details there are in the specification, the more the buying agency becomes responsible for the performance of the product. Conversely, the more the specification describes the performance of the product instead of its design features, the more responsible the contractor becomes for the end product. The legal theory involved in these cases is the implied warranty of specifications.¹ Following is a discussion of the various types of specifications and the risks inherent in each type.

¹ - United States v. Spearin, 248 U.S. 132 (1918).

3.1.1 Design Specifications

DISCUSSION

Specifications detailing the manner or method of performance are often treated as *design* specifications. Contrasted with these are *performance* specifications, which leave the details of performance, and the details of design, to the contractor's discretion. *Design* specifications are those which set forth precise measurements, tolerances, materials, in process and finished product tests, quality control, inspection requirements, drawings and other specific information. It is this *design* type of specification, dealing with the details of the work, which the contractor is "required to follow as one would a road map," which gives rise to implied warranty. Under this type of specification, the buying agency (as the author of the specifications) will be held responsible for design and related omissions, errors, and deficiencies in the specifications and drawings.² There is an implied warranty that the detailed designs or processes will result in an end item which functions as required. Conversely, there is no implied warranty where the specification simply sets forth an objective or end result to be achieved, and the contractor is free to select the means of accomplishing the task, in which case he assumes responsibility for that selection.³ In those cases where the specification contains both design and performance requirements, it will depend on what portion of the specification causes the contractor's difficulties, whether he has discretion to choose how to do the work.⁴

Specific situations working to relieve the contractor from end item performance responsibility would include:

- When the contractor is left no discretion or choice in the materials to be used.⁵
- When specifications set forth dimensions and the item built to the dimensions cannot be used as anticipated because of those dimensions.⁶

² - Monitor Plastics Co., ASBCA 14447, 72-2 BCA ¶ 9626 at 44,971.

³ - J. L. Simmons Co. V. United States, 188 Ct. Cl. 684, 412 F.d. 1360 (1969) at 689.

⁴ - Engineering Technology Consultants, ASBCA 43600, 92-3 BCA ¶ 25,133, recons. Denied, 93-1 BCA ¶ 25,507.

⁵ - J. L. Simmons Co., id.

⁶ - Harrison Western/Franki-Denys, Inc., ENGBCA 5523, 92-1 BCA ¶ 24,582.

- **When specifications define a method of performance or the particular manufacturing processes a contractor must follow (e.g., detailed procedures for pouring concrete, detailed soldering methods, etc.)** ⁷
- **When specified equipment cannot be successfully used in performing the contract.** ⁸
- **When detailed specifications require performance contradictory to local codes or ordinances.** ⁹
- **When the specifications provide for alternate methods of performance, and the contractor selects a method from among alternatives in the specification, the contractor will not be liable if the alternative does not accomplish the desired results.** ¹⁰

3.1.2 Performance Specifications

DISCUSSION

Performance specifications dictate the performance of the end product, not how the contractor will do the work. These are specifications which give the contractor discretion in how to achieve the end result called for by the contract.¹¹ Performance specifications place the greatest degree of responsibility on the contractor and represent the lowest degree of legal risk (but not necessarily the lowest program risk) to the buying agency. It must be said, however, that there are valid reasons for specifying "design" type requirements within performance specifications, as where standardization is needed, where there is an opportunity to avoid duplication of design costs which have already been incurred, etc.

As a general rule, when a performance-type specification is used, the buying agency will not be liable for a contractor's increased costs in performing the contract unless the performance specification embodies requirements which are impossible to attain.¹²

⁷ - Hobbs Constr. & Dev., Inc., ASBCA 34890, 91-2 BCA ¶ 23,755.

⁸ - Maitland Bros. Co., ASBCA 23849, 83-1 BCA ¶ 16,434.

⁹ - Huber, Hunt & Nichols, Inc., GSBCA 4311, 75-2 BCA ¶ 11,457.

¹⁰ - Southern Paving Corp., AGBCA 74-103, 77-2 BCA ¶ 12,813 at 62,363.

¹¹ - Aleutian Constructors v. United States, 24 Cl. Ct. 372 (1991).

¹² - Intercontinental Mfg. Co. V. United States, 4 Cl. Ct. 591 (1984) at 595.

It should also be noted that the fact that the buying agency specifies a minimum requirement for some component or some aspect of performance (e.g., "at least 3 hp"; "no more than 2" wide") does not change a performance specification into a design specification; i.e., the buying agency is not warranting that an item which meets the minimum requirement will perform properly when incorporated into the system. For example:

- A provision that surfaces be at a certain specified minimum temperature when painted was not a warranty that satisfactory results would be obtained at that temperature.¹³
- Where the agency specified a minimum of not less than 14-gauge steel it was not warranting that 14-gauge would meet performance requirements.¹⁴

3.1.3 Brand Name Or Equal

DISCUSSION

These are specifications which require a particular manufacturer's product, part number, or model. The specification may allow for an "equal" product and should clearly set forth the salient physical and functional characteristics of the brand name product. Under this type of specification if the contractor uses the brand name product or an approved "equal," the buying agency assumes the responsibility for proper performance (assuming the contractor used the product in the proper way). If the contractor elects to manufacture an equal product in-house, he will be responsible that the product performs equally with the specified brand named product. The BPPM Section 2.4.2.2.1 contains extensive guidance on the use of "brand name or equal" specifications.

3.2 USING CONSULTANTS TO PREPARE SPECIFICATIONS

REQUIREMENT
<p>§ 8.a.(5) of the FTA Circular 4220.1E requires that grantees avoid situations known as "organizational conflicts of interest." An organizational conflict of interest arises when a contractor, because of other activities, relationships, or contracts, is unable or potentially unable, to render impartial assistance or advice to the grantee, or when a contractor's objectivity in performing the contract work is impaired, or when a contractor has an unfair competitive advantage.</p>

¹³ - Ahern Painting Contractors, Inc., DOTCAB 67-7, 68-1 BCA ¶ 6949.

¹⁴ - Inlet Co., ASBCA 9095, 1964 BCA ¶ 4093.

DISCUSSION

The FTA Circular envisions two distinct problems when using consultants to prepare specifications or statements of work: (1) that the consultant will be biased toward a particular product or firm because he has business relationships with that firm or a financial interest in the product, or (2) that the consultant will have an unfair competitive advantage if he is allowed to compete for a product or service which he helped to define in a specification or statement of work. When a contractor is used to prepare or assist in the preparation of specifications and statements of work, care must be taken to ensure that the contractor will be completely unbiased in his decisions. Buying agencies must ascertain that the contractor has no financial or organizational relationship with a potential supplier which might motivate him to slant a specification toward that supplier. With respect to the unfair competitive advantage issue, contractors developing specifications should not be allowed to compete on procurements for which they prepared specifications.

Best Practices

Contractors who are working on specifications to be used for competitive procurements should be required to accept a "Limitation on Future Contracting" provision in their contract for the specification/ consulting work which precludes them from bidding on the resulting procurement. Further guidance may be found in the BPPM Section 2.4.2.2.2 "Organizational Conflicts Of Interest."

It is also advisable when using consultants to draft procurement specifications to obtain a formal written certification with their proposal which describes all of their past, present or planned organizational, financial, contractual or other interests with organizations whose products or services may be offered in response to the procurement on which they will be consulting. Where there are such interests identified by the contractor, the contractor should also be required to describe why it believes that performance of the proposed consulting contract can be accomplished in an impartial and objective manner. An example of a certification requirement used by the Federal Department of Transportation may be found in Appendix B.10¹⁵.

3.3 SPECIFICATIONS FOR EQUIPMENT AND SUPPLIES

DISCUSSION

Plans, drawings, specifications or purchase descriptions should state only the minimum needs of the agency and describe the supplies in a manner which will encourage maximum competition, avoiding restrictive features which might restrict offers.

¹⁵ - Transportation Acquisition Regulation (TAR) Clause 1252.209-71 DISCLOSURE OF CONFLICTS OF INTEREST (Oct 1994).

Best Practices

Planning - A market survey should be conducted to determine sources that offer products which meet the requirements. Caution must be exercised to avoid disclosure of agency budgets or other information which might give a supplier an unfair competitive advantage. Descriptive literature from one prospective supplier cannot be used as the sole basis for writing specifications. Determine what your essential requirements are and separate these essentials from those which are "nice to have" or desirable. In your research determine what the state-of-the-art is and develop your specification within the state-of-the-art.

Content -

- A performance-type specification is generally preferable to a design-type specification (i.e., don't tell the contractor how to do the work but rather specify the end-item's performance). This is in keeping with a goal of maximum contractor responsibility and minimum risk to the buying agency. It may be necessary, however, to use design-type descriptions (as for components, tolerances, etc.) in certain situations, such as the need for standardization.
- The specification must set forth the minimum essential characteristics and standards required to satisfy the intended use (e.g., "no more than 2" wide"; "at least 3 hp"; "at least once per month").
- When "brand names" are being used for specific components, it may be advisable to include at least two brand names followed by the words "or equal". When so used, the specific features which must be met by offerors should be clearly stated. See BPPM Section 2.4.2.2.1.
- The specification must not only describe the product but must also include reliability and quality assurance requirements (Quality Control Plan).
- Criteria for inspecting, testing and accepting the product will have to be included in the specification.
- Preservation, packaging, packing, and marking requirements will also have to be addressed.
- Include a Contract Data Requirements List (CDRL) to tell the contractor what documentation is required, when it is to be delivered, and whether the documents need approval (e.g., drawings, maintenance recommendations, master parts list, shipping/ handling/ storage procedures, etc.) When buying major systems be sure to require a comprehensive spare parts data package as a deliverable item. This will be

necessary for competing the procurement of spare parts after the initial complement of spares has been used.

- Is training needed for users and those who must maintain the equipment? Are maintenance manuals needed?
- Do not include contractual terms and conditions, such as, cost/price information, warranties, delivery information, etc.
- Write sentences which are short, concise and simple.
- Use decimals instead of fractions.
- Don't use open-ended requirements such as "as directed," "satisfactory to," etc.
- Do not use unfamiliar words, colloquialisms or words which are ambiguous.
- When you have finished, read your specification and ask yourself, "Is there any way that anyone could misinterpret this statement?"
- You may wish to consider standardizing your Agency's approach to the format and content of specifications and statements of work. Appendix B.2 provides a *Specification/ Scope of Service Guide* which contains guidelines and recommendations for developing specifications, data sheets, and statements of work for supplies, equipment and services.¹⁶

3.4 SPECIFICATIONS FOR CONSTRUCTION

DISCUSSION

The technical provisions of construction specifications must be in sufficient detail so that, when used with the applicable drawings and the documents incorporated by reference, bids can be prepared on a fair and competitive basis. In contracting with public funds the essential objective in drafting specifications is to satisfy the fundamental public policy requiring full and open competition. This objective is not only a Federal requirement but most states and local governments have similar statutes.¹⁷

¹⁶ - Prepared by Office of Procurement, The Metropolitan Transit Authority, Harris County, Texas, dated January 1987.

¹⁷ - MPC § 3-203.

Best Practices

Contracting books, manuals, etc. - Volumes have been written about the forbidding and exotic world of construction contracting, and we would like to begin by advising you to obtain some essential roadmaps for this journey, beginning with a comprehensive text entitled, appropriately, *Construction Contracting*.¹⁸ We would also recommend you obtain a copy of the *Construction Contract Administration Manual* (which is devoted entirely to construction contracting) produced by a public agency working with FTA grant funds.¹⁹

Content -

- Materials, equipment, components or systems should be described, where possible, by reference to documents generally known to industry. Such documents include Federal, military, or nationally-recognized industry, and technical society specifications and standards. The standards which best represent no more and no less than the buying agency's minimum needs should be selected for incorporation by reference into the construction specifications.
- If you employ an A/E firm to develop your specifications be sure they are warned against the use of proprietary specifications, i.e., writing a specification "around" a particular manufacturer's product, effectively precluding competition. This is a common practice among A/E firms, especially when a particular product has a proven track record, but the practice conflicts with the objective of full and open competition in public contracting.
- Keep the specifications as simple as possible. One court used these words: "A contractor should not be required to wade through a maze of numbers, catalogues, cross-reference tables and other data resembling cross-word puzzles in order to find out what the government requires in an invitation for bids."²⁰

¹⁸ - The George Washington University's National Law Center's Government Contracts Program has published a number of excellent books dealing with Government contracting. One such book is *Construction Contracting* (The George Washington University: Washington, D. C., 1991). For a complete catalogue of contracting-related texts contact: The GW Bookstore, 800 21st. St., N.W., Washington, D. C. 20052, Phone: (202)994-6870, Fax: (202)296-9445, <http://www.gwu.bkstr.com>.

¹⁹ - *Construction Contract Administration Manual*, Port Authority of Allegheny County, Procurement Department, 2235 Beaver Avenue, Pittsburgh, PA 15233-1080, Phone: (412)237-7000, FAX: (412)237-7101. This Manual contains many worthwhile things, such as procedures for bid document preparation, bidding, contract award, and contract administration; General Contract Provisions; a multitude of forms for reporting, evaluating, administering, etc.

²⁰ - *Gorn Corp. V. U. S.*, 424 F 2d 588 (Ct. Cl. 1970), noted at 592.

- You may want to consider using an "Order of Precedence" clause telling bidders which bid documents are to be relied on in the event of a conflict within the documents. You should choose a clause that places the most important part of the bid package in the most important position. For example, if you are certain that the drawings are correct, your clause could give the drawings priority over the specification.
- Complex specifications are best discussed with bidders at a pre-bid conference but be careful to advise bidders that none of the explanations at the conference will qualify the terms of the specifications, which can only be modified by written amendments.
- Be sure to review carefully FTA Circular 4220 (latest version) and the Master Agreement (MA) for requirements which may affect your specifications. Examples would include:
 - Preference for recycled products. ²¹
 - Use of metric system. ²²
 - Seismic safety for construction projects. ²³
 - Environmental requirements. ²⁴
 - Requirements of the Americans with Disabilities Act. ²⁵
- Describe all of the contractor's obligations as far as meeting codes and standards that are applicable to the project (local, State, and Federal).
- Review the suggestions above for Supplies and Equipment, Section 3.3, for applicability to construction specifications.

²¹ - FTA MA(12) § 15g.

²² - FTA MA(12) § 30.

²³ - FTA MA(12) § 23e.

²⁴ - FTA MA(12) § 25.

²⁵ - FTA MA(12) § 12g.

3.5 STATEMENTS OF WORK FOR SERVICES

DISCUSSION

A statement of work, rather than a specification, is used for services contracts. A statement of work defines the work required of a contractor, either to design the equipment to be procured or to provide services which are not related to the procurement of hardware.

Best Practices

Statements of work should include the following elements:

- When buying services on a "level-of-effort" basis, i.e., when specifying the number of labor hours to be furnished by the contractor, be sure to define the labor categories/hours for each and define the minimum years of experience and licensing requirements (CPA, PE, etc.) for each.
- Include, if applicable, a detailed list of all data, property and services which will be provided to the contractor by your Agency for his use in performing the contract.
- Detail all tasks the contractor must perform, and specify coordination requirements.
- Specify the data that must be submitted for approval. Also define the schedules for initial submission and the review/approval time required.
- Describe all the standards the contractor must fulfill, including Federal, State, and local standards that are applicable to the project.

Acronyms

ASBCA - Armed Services Board of Contract Appeals

BCA - Board of Contract Appeals

DOTCAB - Department of Transportation Contract Appeals Board

ENGBCA - United States Army Corps of Engineers Board of Contract Appeals

FTA MA - Federal Transit Administration Master Agreement

GSBCA - General Services Administration Board of Contract Appeals

MPC - American Bar Association Model Procurement Code for State and Local Government

Chapter 4

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4.0 OVERVIEW

REQUIREMENT

The methods of solicitation and selection allowed within the Federal contractual sphere ¹ are listed in § 9 of FTA Circular 4220.1E. You may choose:

- micro-purchases only for contract amounts less than \$2,500;
- small purchase procedures only for contract amounts less than the simplified acquisition threshold (currently \$100,000);
- sealed bids where
 - you have a complete, adequate, and realistic specification or purchase description,
 - two or more responsible bidders are willing and able to compete,
 - the procurement lends itself to a firm fixed price contract and the selection can be made primarily on the basis of price, and
 - no discussion with bidders is needed after receipt of offers;
- competitive proposals; or
- noncompetitive proposals (sole source) procurement only if you can justify not soliciting additional competition in the manner explicitly defined in FTA Circular 4420.1E § 9.h.

State law usually restricts the method of procurement more tightly than these Federal requirements.

DEFINITION

Solicitation - A purchasing entity's request for offers, including a telephone request for price quotations, an invitation for bids, or a request for proposals.

Offer - A promise to provide goods or services according to specified terms and conditions in exchange for material compensation.

¹ - See Section 1.3.2, "Federal Contractual Sphere."

Acceptance - Agreement to the terms of an offer. In most jurisdictions, "award" by a public agency can constitute acceptance, and may create an enforceable contract.

DISCUSSION

Based on your procurement plans and the specification developed with your customer, you will generally initiate the procurement by soliciting offers. Depending on the requirements of the method of procurement you choose, you may solicit offers in a telephone call or in many other forms ranging up to multi-volume requests for proposals. When you receive offers (whether quotations, bids, or proposals), you may accept one, reject them all, or (unless you are using the sealed bidding method) request additional offers. Regardless of the procurement method, when you accept an offer, you create a binding contract according to the terms of the offer.

Best Practices

When you and your customer have specified the requirement, you will generally solicit offers from suppliers. The solicitation ranges from a telephone call to make a reasonable price determination (in the case of a micro-purchase), to a lengthy request for proposals in the case of a competitive proposal. The terms in your solicitation of offers are substantially determined by the method of selection you will use. Because your contract will ultimately be based on the terms of the offers, the selection of a method of procurement and the terms in your solicitation of offers are important and you will have the most success if they are based on well-tested practices and documents.

The solicitation of offers places you in the position of controlling the competitive process. You, rather than the supplier, decide whether to accept or reject the offers. A technical exception to this competitive model occurs in some micro-purchases and small purchases when, based on catalogues or other supplier information, you issue a purchase order (or similar document) without receiving a direct offer. In this case you are technically making the offer, and the supplier is in a position to accept (usually by performing) or reject (usually by notice to you).

A solicitation does not bind your agency to purchase the goods or services solicited, although it may create an implied contract of fair dealing with your suppliers.² Although you will want to treat suppliers as partners and with respect for the purposes of long run competition and cost-effective business relations, many agencies make clear in their solicitations that they reserve the right to reject all offers, i.e., that they are merely soliciting offers and that the solicitation does not create any rights in suppliers. The price quotations, bids, or proposals submitted by suppliers should be firm offers to your agency to supply the goods or services upon the material terms in your solicitation.

² - United States v. John C. Grimberg Co., 702 F.2d 1362, 1367 (Fed Cir. 1983) (in banc).

In sealed bidding, there is generally no further modification of material terms: your agency either accepts one of the offers or rejects all bids. In the other procurement methods, you may request or receive additional offers before you accept one.

Although FTA Circular 4220.1E provides you broad choice and discretion, state laws and local policy often require that you use sealed bids in certain procurements and that you use competitive proposals in others. Based on state law and your own practice, you may find the method of procurement is largely determined by the type of services or goods you are procuring.³ If the procurement is too large for micro-purchase or small purchase procedures, you will generally invite sealed bids for selection primarily based on price, or request proposals which will be evaluated according to additional criteria before a selection is made. Under certain restricted circumstances, you may solicit a non-competitive proposal from a sole source. Purchases under contracts with sister states or local agencies may also meet the Federal requirements.⁴

If the legal and policy requirements leave you with more than one available procurement method, your choice among these methods will depend largely on:

- the time and expense required of you and your suppliers for the respective methods, and
- the likelihood of getting the best buy for your customers.

When you accept an offer, you establish a contract.

4.1 MICRO-PURCHASES

REQUIREMENT
<p>§ 9.a. of FTA Circular 4220.1E authorizes the use of micro-purchases as a method of procurement, when appropriate. If used, the following apply:</p> <ol style="list-style-type: none">1. Micro-purchases are defined as those purchases under \$2,500.2. Micro-purchases may be made without obtaining competitive quotations if the grantee determines that the price to be paid is fair and reasonable.3. Micro-purchases are exempt from the Buy America requirements.⁵

³ - See Chapter 6 for a discussion of the procurement methods commonly used for each object of procurement.

⁴ - FTA Circular 4220.1E § 7.f.

⁵ - 49 CFR § 661.7, Appendix A to § 661.7, subparagraph (e).

4. Micro-purchases should be equitably distributed among qualified suppliers in the local area and purchases should not be split to avoid the requirements for competition above the \$2,500 micro-purchase threshold.
5. The requirements of the Davis-Bacon Act apply to construction contracts between \$2,000 and \$2,500.⁶
6. Other than the Davis-Bacon Act clauses for construction contracts between \$2,000 and \$2,500, no other Federal clauses are required.
7. Minimal documentation is required: (a) a determination that the price is fair and reasonable and (b) how this determination was derived.

DEFINITION

Micro-purchasing - A method of procuring goods and services under \$2,500. A micro-purchase does not require obtaining competitive quotations if you determine that the price to be paid is fair and reasonable.

DISCUSSION

If permitted by state and local requirements, purchases under \$2,500 no longer require more than one price to satisfy Federal requirements, as long as you determine that the price paid is fair and reasonable. You can include a "fair and reasonable price" determination in your forms used for micro-purchases. Rotating through a list of the suppliers is one method to equitably distribute the micro-purchases among qualified suppliers.

Best Practices

A threshold question you must get an answer to is whether or not your state law allows you to implement a micro-purchase method of procurement that does not require "full and open competition." If you have the legal authority under your state law to implement a micro-purchase program, you must comply with the procedural requirements stated as items 1, 2, 4, & 5 under the Requirements portion of this section. Once you are satisfied that you can legally have a

⁶ - As a practical matter, you may wish to adopt the statutory threshold for the Davis Bacon Act of \$2,000 as the micro-purchase threshold for construction services. This is what has been done with the Federal Acquisition Regulation -- see, FAR § 13.601(a) which defines micro-purchases for construction as being limited to \$2,000. However, if you have a requirement for \$2,300 of construction, you no longer need competitive quotations, but you still need Davis-Bacon wage rate submissions and compliance.

micro-purchase program under your state's laws, you need to develop a procedure or regulation that addresses the FTA requirements and provides practical guidance to your organization

Limits and Procedures - How will you guide the use of micro-purchase procedures? In accordance with the general requirement to have procurement procedures and a contract administration system (including written selection procedures),⁷ larger agencies often maintain formal written procedures that address the circumstances under which micro-purchase procedures should be used. Although these circumstances shall not include purchases greater than \$2,500, you may wish to set your limit lower depending on state law and your own experience with the cost-effectiveness of price competition using small purchase procedures. If you can efficiently ascertain the lowest cost supplier, you may not always wish to use micro-purchase procedures.

This method of procurement is intended to be used as creatively as possible and to minimize the paperwork that is inherent in other procurement practices. In establishing policies relating to micro-purchases at the grantee level, you must always be mindful of the "equitably distribute" requirement and the prohibition against splitting procurements.⁸ The latter requirement is one you already deal with at all levels of your procurement processes. However, a significant requirement is to meet the documentation requirement of the FTA -- a determination that the price is fair and reasonable and how this determination was derived.

Equitable Distribution - How will you equitably distribute your purchases among local suppliers? Do you have an automated purchasing and materials management system in place that allows you to track purchases by line item and vendor the item was purchased from? If so, and if you have multiple vendors for that item or service, you can alternate among those vendors. Do you have blanket purchase agreements in place with multiple vendors for multiple products which were established as a competitive process? If so, micro-purchases could be made from those vendors, again on a rotating basis. It is a good practice to keep records on dollar amounts awarded during the year to assist in monitoring distribution.

Bid Splitting - How will you monitor procurements so that requirements are not being split to avoid another procurement method? You may have a system in place now that allows you to monitor any tendency to split requirements over your small purchase maximum into small purchases. Micro-purchasing would be an additional method of procurement addressed in your procedures and training within your agency. If you have an automated system which records individual procurements, that system may have to be reviewed periodically to analyze the

⁷ - FTA Circular 4220.1E § 8.c.

⁸ - You must not split a procurement that would be in excess of \$2,500 (three widgets worth \$1,500 apiece for a total of \$4,500) into smaller purchases (three sequential purchases of \$1,500) in order to use this method of procurement.

procurement patterns for a particular product or service. Many times, you simply rely on your buyer or contracting officer to monitor not only bid splitting but also equitable distribution.

Fair and Reasonable Determination - How do you document your determination that the price is fair and reasonable and the basis for that determination? You may want to prepare some "boilerplate" determinations for signature that address specific ways you buy products or services. You may want to say that based upon a telephone quote from John Doe Company for the widget and comparing that price with a price paid 6 months ago for the same widget, it is fair and reasonable -- you would fill in the blanks in your form, sign it, and file in the procurement file. Alternatively, you may use an existing form such as a buyer's tabulation that is filed. You may want to have another form that indicates the procurement is being made from an existing Blanket Purchase Agreement for which competition was obtained. You may want to prepare a form that addresses sales items -- you are buying this widget from X Company based upon an advertisement that the widget normally sells for \$35 each and is on sale for \$29.50 and this is fair and reasonable. Finally, you may want to have a form that simply addresses a standard commercial item -- the price is fair and reasonable because it is a standard commercial item sold in the open marketplace.⁹

In implementing this requirement at the Federal level, the regulations recognize the paperwork cost of verifying the reasonableness of price may more than offset the potential savings. The price is also essentially assumed to be reasonable unless the contracting officer suspects or has information to indicate that the price may not be reasonable (higher than recent price paid or has personal knowledge of price for the supply or service), or a supply or service is being purchased for which there is not comparable pricing information readily available.¹⁰

Other Federal Precedent - In response to requests from its own field offices for more guidance, the Federal Government recently revised its regulations dealing with direct Federal micro-purchases.¹¹ Because these changes give more flexibility to procuring agencies, you might want to review these provisions as you consider policies and guidance for your agency's micro-purchases. Among the changes were:

- the Government-wide commercial purchase card is the preferred means (but not the only means) to purchase and pay for micro-purchases;¹²

⁹ - Although it is written for the more detailed "price analysis" required in competitive procurements, FAR § 15.805 discusses price analysis techniques that may be used or adapted to support your determinations for these micro-purchases.

¹⁰ - FAR § 13.106(a)(3).

¹¹ - These changes were published as part of Federal Acquisition Circular 90-40 in Volume 61 of the Federal Register on pages 39189 through 39199 (61 Fed. Reg. 39189-39199 (July 26, 1996)).

¹² - FAR § 13.103(e).

- agencies are encouraged to delegate micro-purchase authority to employees of the agency who will actually be using the supplies or services being purchased;¹³
- contract clauses are not required for micro-purchases; and
- documentation to support micro-purchases is to be minimized.¹⁴

A recent report by the General Accounting Office¹⁵ that addresses use of credit cards by Federal agencies is expected to result in more relaxed guidance being issued by the Federal agencies and increased usage of the credit card. The report discusses the savings in time and money that an agency can realize by utilizing credit cards for micro-purchases and the fact that there has been no apparent increase in procurement fraud through the utilization of these cards.

There is no absolute guidance that can be given in this area as to what works best or even well. The authority to use micro-purchases is intended to provide a very flexible procurement method which will allow you to buy low-priced items in a cost-efficient manner.

4.1.1 Purchase Cards

DISCUSSION

This section deals with the use of purchase cards for micro-purchases, which are those of \$2,500 or less. Since micro-purchases are exempt from the requirements of publicizing and obtaining competitive quotes, they are well suited to being delegated by the procurement department to the end users of the supplies or services. And since purchase cards have proven to have certain advantages in making micro-purchases, the delegation of authority to use purchase cards will be the focus of this section.

A purchase card works like a personal credit card, such as VISA or MasterCard. Purchase cards offer a number of tangible advantages over the traditional purchasing methods of issuing individual purchase orders or blanket purchase orders, but they also present new challenges, especially in the area of internal controls and the equitable distribution of the agency's business to various vendors, including Disadvantaged Business Enterprises (DBE's).

¹³ - FAR § 13.106(a)(3)(i) and 1.603-3(b). See also Section 2.1.2, "Autonomy" regarding decentralization, generally.

¹⁴ - FAR § 13.106(b).

¹⁵ - GAO/NSIAD-96-138 (8/6/96). GAO Reports are available on the Internet at the Government Printing Office web site: www.access.gpo.gov.

Best Practices

The San Francisco Bay Area Rapid Transit District (BART) instituted a pilot program for purchase cards on July 1, 1996. The results of the BART program have generally been very positive. The BART experience has demonstrated a number of important lessons, which other grantees should be aware of, and these are discussed below. The detailed procedures adopted by BART for implementing its purchase card system are included in Appendix B.13, *BART Purchase Card System*.

Delegation of Authority - All purchase cards should be centrally controlled out of the Procurement Department. The Procurement Department must be responsible for training those individuals who are to be given authority to use the purchase cards. In order to maximize the benefits of micropurchasing with purchase cards, the persons authorized to use the card should be those whose department will be using the supplies or services being purchased. The delegation of authority to end users should involve the appointment in writing of these end users as "contracting officers" (or such other title as the grantee may use to describe those having authority to award contracts). Such an appointment procedure has been adopted by BART, and is also followed by Federal agencies (See FAR 1.603-3, *Appointment*). All purchase card activity would function, therefore, as re-delegated procurement authority requiring a valid warrant, training and periodic review by the Procurement Department. Cardholders would be subject to the same *Standards of Conduct* as other procurement personnel (See BPPM § 2.4.2.2.2 - *Written Standards of Conduct*). They would also be subject to the procurement policies issued by the Procurement Department. The grantee's written procurement procedures must be expanded to give specific guidance for purchase card activity, including the internal controls and the best business practices for users to follow.

Advantages of the Purchase Card - BART has identified a number of advantages in using the purchase card. These include:

- Vendors are now getting paid much more quickly; i.e., within 1-2 days.
- Vendors are responding rapidly to the agency's orders; i.e., within 20-30 minutes of an order.
- If a vendor does not have the needed part, the end user "shops" the street until they can find another vendor who has the part, instead of ordering the part from the initial vendor who would have to "buy" the part and pass it through the blanket purchase order with an additional "markup."
- There is more price competition with the card than with using the traditional blanket purchase order system. In the past, vendors knew how difficult it was to get a blanket purchase order established, so their pricing tended to be inflexible. With the card, vendors know that BART has the ability to go to other vendors, so there is now more

price competition. The bottom-line result is that there are fewer vehicles out for parts and the budget performance has improved.

- The card provides a complete electronic listing of all cardholder activity. This activity can be analyzed using PC software such as MS Office-Access and Excel to look at trends in the data; for example:
- Were any individual transactions over the micro-purchase threshold of \$2,500? Are requirements being artificially split to stay within the \$2,500 limit?
- Were purchases of similar items for different vendors reasonably uniform in pricing? In other words, does the data prove the reasonableness of prices being paid?
- Is the business being equitably distributed among vendors?
- Are Disadvantaged Businesses receiving an equitable portion of the business? This can become a problem area with the card, and end users need to work to identify potential DBE vendors. The agency's written procedures for the card should make the cardholders responsible for meeting the agency's reasonable and attainable DBE goals.

4.1.2 Consolidation of Micro-Purchases

If you have a large volume of repetitive buys, you should consider whether it is feasible to consolidate these purchases into larger quoting packages in order to get better pricing, reduce inventory levels, and make the procurement operation more efficient in terms of effort expended. The best practice described below may be something you should consider for your agency if you have circumstances similar to those at the Whidbey Island Naval Air Station.

Best Practices

This describes an initiative taken by the Purchasing Manager at Whidbey Island Naval Air Station to analyze the repetitive procurements for standard items from the several different shops at this government facility, and consolidate them into larger quoting packages. The result was a dramatic lowering of unit prices and a much more efficient procurement office in terms of effort spent. This procurement manager also used this technique for her next employer, Community Transit, with similar savings.

When she assumed the duties of Purchasing Manager, this individual began to develop lists of items bought repetitively during the last six-month period. She entered the items into a database for easy retrieval and updating. A list of items was developed for each of the functional user shops that initiated procurements. These included: paint supplies, building supplies, plumbing supplies, grounds keeping supplies, liquid oxygen plant supplies, vehicle maintenance, office supplies, electrical supplies and waste & heating plant chemicals. Once the historical purchases

information was developed, the Procurement Manager sent the data to each of the shop managers and had them review it and update it for their anticipated needs in the upcoming six-month period.

With the anticipated six-month requirements lists in hand, the Purchasing Manager then developed vendor lists for each of the different shop's requirements. Vendors were notified that the anticipated needs for the next six-month period were based on actual historical usage so that there was a certain degree of confidence that the items on the list would be ordered during the upcoming period, although no guarantee was given to the vendors that the Navy would buy the same quantities they had bought in the past. It should also be noted that the six-month contract period was chosen after dialogue with vendors who suggested they would be willing to bid prices without contingencies for inflation if the contract was six months and not, for example, one year. So the contract terms were chosen with the vendors' advice as to what would achieve the best pricing arrangement. For each list of standard items bid, no more than two or three vendors were awarded each list. Then blanket agreements were processed with unit prices that were firm for the six-month period of the contract. This entire procedure was then repeated every six months. The end result was not only dramatically lower pricing and more efficient procurement operations, but also lower inventory levels since the vendors were willing to stock the various items knowing they would in all likelihood get orders for the items. This meant the Navy received the items expeditiously when orders were placed.¹⁶

4.2 SMALL PURCHASES

REQUIREMENT
Small purchase procedures may not be used if the services, supplies, or other property costs more than \$100,000. If small purchases procedures are used, price or rate quotations shall be obtained from an adequate number of qualified sources. FTA Circular 4220.1E § 9.b.

DEFINITION

Small Purchase - Acquisition of services, supplies or other property that cost less than the federal simplified acquisition threshold, currently fixed at \$100,000.

Small Purchase Procedures - Those relatively simple and informal procurement methods used to make small purchases. If these procedures are used, price or rate quotations shall be obtained from an adequate number of qualified sources.

¹⁶ - For further information contact Ms. Sandra Kuykendall at skuykendall@islandtransit.org.

DISCUSSION

As a method of procurement, small purchase procedures recognize that up to some statutory level (\$100,000 for federal procurements) it could cost more to conduct formal competition than the value expected to be yielded by the formal competition. This procedure requires obtaining only limited competition from an "adequate" number of "qualified" sources (at least two). Solicitations and quotations for small purchases may be either oral or written.

Best Practices

State and Federal Thresholds - As with most other procurement methods, it is important that you determine the dollar threshold for small purchases in your state law and local requirements. In many cases, the definition will not define a small purchase but, rather, will establish at what dollar value competitive sealed bids or proposals are required -- e.g., "before a contract can be awarded in excess of \$15,000, the procedures of this statute relating to competitive sealed bids or competitive sealed proposals shall be used." Contracts awarded at the lower of this state level or \$100,000 are considered small purchases for the purposes of this discussion and the provisions of FTA Circular 4220.1E.

If your state and local threshold for small purchases is substantially less than \$100,000, you may wish to recommend that these requirements be changed to conform more closely to Federal requirements. Alternatively, if the state's requirements above its small purchase threshold are substantially less cumbersome than Federal requirements, you may wish to create an intermediate procedure for small Federal / competitive state purchases. For example, if your state required that in all construction and equipment contracts over \$10,000, competition be obtained by a simple posting and solicitation without advertisements, you could establish a procedure for bids between \$10,000 and \$100,000 that avoided the time and expense of advertising the procurement and relied on direct solicitation to known sources.

Initiating a Small Purchase - What documentation do you use to initiate this procurement method? Most transit properties use some sort of requisition that is typically prepared by the unit that has the requirement (your customer) which details how many widgets are required and by when. Many times, this same document will include estimated pricing and this estimate will frequently dictate which method of procurement you will use. Obviously, if the requirement is for \$500,000 worth of widgets, you will use a competitive process (IFB or RFP). Your procedures can encourage your customers to attach a draft specification or scope of work to the requisition, particularly if the small purchase method is to be used; otherwise you may assist your customer. (See Chapter 3, "Specifications.")

Should you establish a practice of rotating buyers that are involved in using these procedures from one commodity to another? In rare instances, it has been found that a buyer gets "too close" to a particular vendor and, because of the informality of the procedures, that vendor starts to receive most of the purchase orders for those requirements. Purchase order

records can be reviewed (perhaps through your agency's accounts payable records) to see if one vendor has received an abnormal amount of purchase orders. On the other hand, a buyer who is familiar with the supply industry characteristics of a commodity, such as the manufacturing cycle, lead time, distribution practices, etc., can bring both efficiency and more optimal buying to the work.

Solicitation - What level of competition is required? Stated another way, how many individuals or firms must be solicited? It is not unusual to have a requirement that three firms be solicited up to an expected contract value of \$5,000 and between \$5,000 and \$15,000 (the hypothetical maximum), five firms would be solicited. If your source list has more firms than you are required to notify, do you have a procedure to rotate sources? For example on one procurement you will contact firms 1 through 5 and on the next one, you will contact firms 6 - 10. It is not unusual to have procedures that require you to rotate your sources in this manner. By doing so, you are broadening your base of competitors and enhancing your competition.

Is the small purchase for architectural or engineering (A&E) services? If so, A&E services may be procured using small purchase procedures. However, the language in FTA Circular 4220.1E that requires the procurement of A&E services using the Brooks Act procedures also applies.¹⁷ The selection must be based initially on qualifications; price may be considered only for the most qualified offeror. You may proceed to the next most qualified if you cannot agree on a fair and reasonable price.¹⁸

What level of documentation is required to solicit prices for small purchase non-Brooks procurements? Can you use oral descriptions only, up to a certain dollar value? Are written descriptions (specifications or statements of work) required above a certain level? It is not unusual for small purchase procedures to allow oral descriptions, (particularly if the procurement is decentralized or the buyer has expertise in the item), up to one estimated dollar level and then require written descriptions above that level. Remember, that for construction using federal dollars, the Davis-Bacon Act requirements apply to all procurements (including small purchases) over \$2,000.¹⁹ The level of documentation may also be tied to whether or not an off-the-shelf item is being bought or whether the item or service being bought is as per an agency specification. Oral solicitations and quotations may be allowed at a higher dollar level for off-the-shelf products than for products built to agency specifications.

¹⁷ - See FTA Circular 4220.1E § 9.e -- "Grantees shall use [the Brooks Act] for contracting for A&E services. . . (emphasis supplied)" See Section 6.5 - *Architect-Engineering Services* for a complete discussion.

¹⁸ - See Section 6.5 - *Architect-Engineering Services*.

¹⁹ - See discussion of these requirements in Section 8.1.3, "Davis Bacon Act."

Is there a requirement that you include a certain number of DBE firms in the firms you contact? This is a fairly common requirement transit properties use for DBE participation. Compliance with your policies can be systematically documented.

How do vendors indicate their price(s) to you in response to your request? Do you accept oral prices? Do you require written quotations? If so, do you allow faxes? You could do any of these. You must, however, determine what complies with the laws governing your property and then develop and follow appropriate procedures. The format and level of detail in these procedures should be commensurate with the size of your agency and they can be well enough promulgated so that they are well known to members of your procurement staff and your internal customers.

Award - What happens if the quotations are all higher than your small purchase threshold? Can you still issue a purchase order or do you have to change methods and perform a competitive procurement? In many states, you will not be able to award an order that is in excess of your state's small purchase threshold. This is why it is a good idea to try to develop an estimate prior to initiating the quotation process. If it is "close", it will probably be better to commence a formal competitive procurement to begin with.

How do I award a small purchase? The most common contractual instrument used to accomplish a small purchase is a purchase order. Typically, after you determine who will provide the best price for the widget, you will prepare a purchase order with the price and other terms and conditions required by your agency and send it to the vendor. In most instances, this document transmission does not create a binding contract -- it is your offer to the vendor to do the work or provide the widget at the price quoted. A contract comes into existence when the vendor demonstrates some level of acceptance of the offer -- usually when accepted in writing, performance commences, or delivery is made.²⁰

Documentation - How much documentation of the procurement process do I need to keep? One standard you may find useful is to how much would satisfy a third party (an auditor), that you have complied with your agency's policies and procedures and that the price you are paying is "reasonable." This will typically include the requisition (or purchase request), what specification was used (if any), who were quotations requested from, when and what quotations were received and from whom (a simple abstract of quotes received), and a copy of the purchase order. Much of the documentation for small purchases can be accomplished on pre-printed forms or completed on-line if your computer system will allow for that type of input. Remember, it is supposed to be simple, but never forget that we must make an audit trail that can

²⁰ - A "delivery order" as opposed to a purchase order, is issued typically under the terms of a requirements type contract that has been competitively procured under formal procedures. The delivery order is simply an ordering mechanism under that contract and is not an independent contract like a purchase order.

be followed – the clearer and more complete the trail is, the better. Procurement documentation is discussed in Section 2.4.1, "File Documentation."

4.3 COMPETITIVE PROCUREMENT METHODS

4.3.1 Overview -- Sealed bids v. Competitive Proposals

REQUIREMENT

There is no Federal requirement that grantees use the sealed bid or competitive proposal method of procurement for any procurement. These are methods identified by the FTA as methods that may be used as appropriate.²¹ The following conditions should be present for sealed bidding to be feasible:

1. A complete, adequate, and realistic specification or purchase description is available;
2. Two or more responsible bidders are willing and able to compete effectively for the business;
3. The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price; and
4. No discussion with bidders is needed.²²

Sealed bidding is the preferred method for construction if the above conditions are present.²³ If sealed bidding is used, FTA Circular 4220.1E places general requirements on the advertisement, bid period, bid opening, price adjudication, and contract award or rejection of bids.²⁴

If, however, a grantee decides to use the competitive proposal method of procurement, the FTA prescribes requirements for publication including evaluation factors, solicitation, evaluation, selection, and award.²⁵

²¹ - FTA Circular 4220.1E § 9.

²² - FTA Circular 4220.1E § 9.c.(1).

²³ - FTA Circular 4220.1E § 9.c.(3).

²⁴ - See Section 4.4, "Sealed Bids," and FTA Circular 4220.1E § 9.c.(2).

²⁵ - See Section 4.5, "Competitive Proposals," and FTA Circular 4220.1E § 9.d.

For some agencies, state law requires the sealed bidding or competitive proposal method in procuring certain goods or services, or in certain circumstances.

DISCUSSION

If you and your customer (using department) can specify what you need accurately enough, you maybe confident you will receive a satisfactory product or service from any responsible and responsive bidder. In these cases you can maximize price competition and simplify the process by using sealed bids. E.g., supply of diesel fuel normally fits this procurement method.

There are commodities and services that your customers need that are very difficult, if not impossible, to obtain through a sealed bidding process under which award is made to the low responsive responsible bidder. You may not be able to define your requirement precisely enough and/or you may be concerned with performance specifications which are, by their nature, more subjective than design specifications.²⁶

There may be technical and price tradeoffs in what you are trying to buy. You may be willing to pay a somewhat higher price to obtain a commodity that does more for your system, but there is a limit to what you will pay. You may find that the quantities or time required are unknown. The price risk associated with a fixed price contract may be burdensome on the contractor and would be borne at too high a price to the agency to use that type of contract. Consequently, you need the ability to negotiate cost elements for the contract that could result in a cost reimbursement type contract.

There may be a variety of good sound business reasons why you need the ability to negotiate a contract and are willing to spend the time to do so. The competitive proposal method is a flexible procurement tool for you to use. E.g., development of a new information system to serve a unique need would probably require a negotiated procurement.

Purpose

Sealed bidding (sometimes called "invitation for bid method" or "formal competition") and competitive proposals (sometimes called "request for proposal method, or "competitive negotiation") are the two principal procurement methods. The sealed bid method is preferred because:

²⁶ - See Chapter 3, "Specifications" for a discussion of these and other specification issues.

- it is a simple process without complex evaluation criteria or repeated requests for and receipt of offers;
- it maximizes price competition by basing the selection among responsive, responsible bidders on price alone; and
- it is the most easily understood by suppliers and the public, maximizing public acceptance and minimizing the opportunity for unethical practice.

However, it requires a very clear specification since it could result in you not getting what you want, and the successful bidder can use ambiguity in the specification to reduce its costs and increase its profit. Nevertheless, this method is required by many state laws for many major transit procurements.

Your customers may not embrace sealed bidding as eagerly. In addition to the burden of specification which often falls on them, they may believe that sealed bidding requires them to set minimums on these parameters just to maximize price competition. Hence, the negative connotation of "low bid" equipment or services. Most states require, or at least permit, use of the competitive proposal method for professional services. Computer system procurements were often classified as professional services, recognizing the design and software development content which made it difficult to specify computer systems for price competition. Today, software systems often have their own exemptions from competitive bidding requirements.

Where it is permissible, there is a growing trend to use competitive proposals. An increasing number of states permit competitive proposals for bus procurements and the American Public Transit Association *Standard Bus Procurement Guidelines* encourage the use of this method. The competitive proposal method is intended to permit competition on quality and other factors, as well as on price.²⁷ It is a good practice to become familiar with your state laws and work with counsel to maximize flexibility of the procurement process to be used.

Best Practices

Similarities between the Sealed Bidding and Competitive Proposal Methods of Procurement -

The competitive proposal method has many common attributes with the sealed bidding process:

- Like an Invitation for Bids, the Request for Proposals is a written document published to the "world", soliciting the submission of offers in response to the Request.
- The objective is to promote full and open competition.

²⁷ - The Brooks Act procedures, required for Architectural and Engineering services and described in Section 6.5, go one step further by prohibiting price competition and requiring selection based solely on technical criteria.

- The terms and conditions of the solicitation and the resulting contract are spelled out in the Invitation or Request.
- If determined necessary, an opportunity is provided (through a pre-bid or pre-proposal conference) for prospective offerors to meet with procuring agency officials to get answers to questions prior to the submission of the bids or initial proposals.
- A reasonable amount of time is provided prospective offerors in which to prepare and submit their offers.
- Rules are normally provided that specify treatment of offers that are submitted late.
- Award will only be made to an offeror determined to be "responsible."

Differences between the Methods of Procurement - The competitive proposal procurement method differs from the sealed bidding process in that:

- A complete, adequate and realistic specification or purchase description allowing for competition primarily on the basis of price alone may not be available.
- The contract award amount, whether a firm-fixed price or some type of cost reimbursement contract, can only be determined on the basis of costs of the contractor derived from a negotiation process.
- Discussions or negotiations may be needed to address technical requirements as well as proposed cost or price aspects of the offeror's proposal. Discussions may be conducted with one or more offerors who have submitted proposals.
- An opportunity may be given to revise proposals and to submit a final proposal at the completion of the discussion phase of the process.

4.3.2 Common Elements of Solicitation Process

4.3.2.1 Advertising and Publicizing Solicitation

REQUIREMENT
§ 8.a. of FTA Circular 4220.1E requires that all procurement transactions be conducted in a manner providing full and open competition.
§ 9.c. of FTA Circular 4220.1E requires that invitations for bids are to be "publicly" advertised.

§ 9.d. of FTA Circular 4220.1E requires that requests for proposals are to be publicized. State law requirements are sometimes more specific as to the content and manner of advertising, particularly when using the sealed bidding method.

DISCUSSION

IFBs and RFPs must be publicly advertised and publicized (respectively) but the precise manner and content is at your discretion within your state law requirements. While the major local newspapers in your commercial community are the most commonly used media, varying procurements will dictate varying media and varying notice periods to most cost-effectively notify the greatest feasible number of competitors.

Outreach through diverse media may be the most cost-effective means to increase competition, e.g. through market communication networks such as trade associations, commercial procurement listing services, or mailing list enhancement as discussed in Section 4.3.2.2, "Solicitation Mailing List." However, advertising in appropriate media is a prudent manner of ensuring unbiased notification and of making new contacts. In addition to increasing competition, advertising procurement actions also broadens industry participation in meeting industry requirements, as well as provides assistance to small businesses and DBE firms interested in obtaining contracts and subcontracts.

Best Practices

Your state legislature, in recognizing a causal relationship between advertising and competition, may have addressed the need for advertising procurements by enacting a requirement to advertise. As with other procurement issues, you should check to see what, if any, specific requirements you are obligated to follow under your state's law. The requirement for advertisement generally takes the form of requiring a notice inviting bids be published at least once in at least one newspaper of general circulation in the state not later than the fourteenth day before the day set for receipt of bids -- the numbers vary from state to state but these parameters are typical.

There are many variations to this general type of notice requirement including the number of times the notice must be published, the number of newspapers it must be advertised in, the target circulation of those newspapers, and the number of days prior to receipt of bids it must be published. The contents of the notice itself are frequently mandated as well: e.g., must include a general description of the items to be purchased, must state the location at which bid forms and specifications may be obtained, and must state the time and place for opening bids. The same rules and notice requirements may apply to both competitive bids and competitive proposals. If you have scheduled a pre-bid or pre-proposal conference, this is also one of the first pieces of information upon which the offerors will act. Remember, what you want to gain from this advertisement are responses from potential bidders or proposers to your up-coming procurement and their interest in receiving the solicitation you plan to issue.

If you are in a position to adopt regulations governing the advertisement of solicitations, you should keep in mind that one of your goals through this effort is to maximize competition. With that as your goal, the following may be of assistance:

- Deciding into which newspapers to place your notices, determine which (if you have a choice) reaches the broadest readership, particularly in the business community (i.e., prospective bidder or proposer).
- Because advertisements are such an expense, try to negotiate with the newspaper to include your notices for free as a "public service." It doesn't hurt to ask, particularly if you have competition for the business. Even if you are unsuccessful in having the notices placed for free, you might be able to obtain a reduced rate.
- Does the city or county have a place where they post notices and is it used by bidders? Can you post there? You may have a place where your agency is required by law to post notices of its meetings (a public meeting act notice) which may be a good place to place these procurement notices as well.
- Does your agency have a "home page" on the Internet's World Wide Web? Getting the word out on upcoming procurements is one of the primary purposes many transit agencies establish a home page in the first place (the other is posting job vacancies). You may also want to consider using existing state-level home pages or bulletin boards. Don't overlook this as a real medium to reach potential bidders and proposers. The federal government is really encouraging companies of all sizes to utilize computers in the procurement process, and has many initiatives to go "paperless." This is particularly evident in small purchases. As the procurement community becomes more sophisticated in accessing and effectively using the Internet, consider utilizing this relatively inexpensive medium to advertise your procurements to a national audience.
- If your commercial environment supports many broad-based newspapers, it may be appropriate to competitively procure newspaper advertising.
- If your advertising volume is significant and your media market complex, you may find that an agency can cost effectively negotiate media availability.
- One of the most effective ways to increase DBE participation in your procurement processes is to advertise in media read by that target community. Your DBE program may require you to advertise in target-specific newspapers to enhance participation by those entities. Your agency's program may be large enough to distribute a regular publication to all vendors certified under your program or to membership lists of such organizations as minority chambers of commerce. Whatever is being done by your agency in terms of advertising the program, you can take advantage of that opportunity and advertise up-coming procurements as well. Because of time requirements in advance

of the actual publication, you may not be able to give all of the detail about a specific procurement, but you still can put the community on general notice about the opportunity.

- Does the construction industry in your community (AGC, ASA, etc.) advertise to its membership notices of up-coming procurements in the public sector? If so, try to get your notices published there as well. Frequently there is no charge for this service.

We have identified in the "Requirements" discussion above, the only FTA requirements that exist in terms of publicizing notices about up-coming procurements. Even though there are no detailed discussion or set of guidelines other than these general statements.²⁸ It is a good practice to advertise your procurements in a manner that will encourage maximum competition. Find out if your "general circulation" newspaper has national circulation. That is the sort of information that circulation departments of newspapers love to pass on to prospective customers! Consider advertising your large rolling stock and systems-type contracts in national trade association publications such as APTA's *Passenger Transport* and other trade magazines. Also, consider advertising your procurements in the *Commerce Business Daily (CBD)* which is the required publication for federal government contract actions.²⁹

4.3.2.2 Solicitation Mailing List

REQUIREMENT

In addition to the general requirement for full and open competition which we have discussed above, the only additional requirement dealing (indirectly) with a mailing list is the requirement in FTA Circular 4220.1E § 9.c. that, if the IFB method is used, "bids shall be solicited from an adequate number of known sources."

DISCUSSION

The development and use of a solicitation mailing list is a critical part of the procurement process. This list includes all eligible and qualified concerns that have expressed an

²⁸ - In 1990, the FTA published *Procurement Guidelines for Third Party Contracting* which included, in Chapter II, Paragraph 7.I, a statement that "All IFBs should be advertised in a manner that promotes participation in the bidding by all qualified and capable firms. Advertising only in the local news media is not normally adequate." This document was canceled by the publication of FTA Circular 4220.1C in 1995 and no further guidelines have been issued. The concept of "all qualified and capable firms" is a viable one under federal law, and suggests that you should tailor your publicity programs to the supply markets for your procurement. This is why we have discussed national and local advertisement in the text of this subsection and why, under the subsequent discussion of mailing lists, it is important that all known firms that provide the item or service being procured be solicited.

²⁹ - If you are interested in more details about the *CBD* and other federal government policies relating to publicizing contract actions, those details are spelled out in FAR Part 5. FAR § 5.207 details with the specifics of preparing and transmitting the notices for inclusion in the *CBD*.

interest in receiving the solicitation, or that the agency considers capable of filling the requirements of a particular procurement. Over a period of time and after repetitive procurements for the same items or services, your mailing list for some items will stabilize and you will not be adding too many new names to the list, even after an aggressive and comprehensive advertisement campaign. However, it is important that you continue to "manage" that list and ensure it is kept current and that firms expressing an interest or desire to participate in up-coming procurements are added. During the actual solicitation process (after the solicitation is released), the list takes on added significance because it is the record detailing which firms received the solicitation and to whom amendments should be issued.

Best Practices

Procurement Role of Solicitation Mailing Lists - Very simply put, the solicitation mailing list contains the names, addresses and frequently the point of contact for entities that will receive your solicitation.

Development of Solicitation Mailing Lists - This list can be developed from a variety of sources:

- Prior procurements are reviewed and the names of entities that submitted bids or proposals in response to those procurements are included in the list for this new procurement.
- If what you are going to buy is currently under contract, the incumbent contractor is normally included on the list.³⁰
- Firms that responded to your advertisement expressing an interest in obtaining the solicitation you are issuing should be added to the mailing list.
- You may encourage your internal customer to provide you with names of firms it considers capable of filling the requirements of the procurement for inclusion on your list. If the specifications for your requirement were prepared by third party consultants or

³⁰ - If you are not satisfied with the performance of the current contractor, the appropriate remedy is not to arbitrarily decide not to issue the firm a solicitation for the follow-on procurement. If your performance concerns are well documented, you have two alternatives. First, include the firm on the list, address performance record under any appropriate technical criteria. If it is ultimately the apparent awardee, address your performance concerns as part of the responsibility determinations -- the firm may be able to address your concerns at this time to your satisfaction. Second, if the performance concerns are irretrievably deep, it may even be possible to initiate debarment or suspension at the local, state, or Federal level. Debarments and Suspensions as well as Responsibility Determinations are specific topics that are discussed in subsequent sections of this Manual.

contractors, they may be a source for firms that are considered capable of filling the requirements.³¹

- The DBE program office within your agency can identify any DBE firms that may be interested in receiving the solicitation. Depending upon how your database is established, you may need to identify the Standard Industrial Classification (SIC) Code number (or however your agency identifies firms within your database) and furnish that Code to the appropriate office to aid in their search. Any firms so identified can be added to your list as well.
- National, state, and local agencies may be able to assist with lists; e.g., your state economic development office or national trade associations.
- Particularly in construction solicitations, you will want to add to your mailing list plan rooms that are operated by various trade associations or chambers of commerce and any Dodge Room services in your locale. These are ideal locations for specialty subcontractors to review the plans and specifications that are applicable to only their particular specialty without buying the entire solicitation package. The more knowledgeable multiple subcontractors are about your procurement, the better the competition to the prime contractors who will be submitting bids or proposals.

If you will be charging bidders or offerors for your solicitation package (typically the case in construction service solicitations), you may want to send out a pre-solicitation notice indicating the cost and how payment (or deposit) is to be made. Have that payment information returned to your office. You may then include those firms that have provided the required payment or deposit in your ultimate solicitation list.

Similarly, if your mailing list is very long, you may want to mail a pre-solicitation notification to all entities on your list advising them of the upcoming solicitation and asking if they want to receive the solicitation for this procurement. If they fail to respond, you may assume they do not wish to receive the solicitation. This action could result in a smaller (and therefore less expensive) solicitation process, while still allowing everyone on your list the opportunity to compete in the procurement. You may also ask in some or all of these mailings if the firm wishes to withdraw from the list; the quality and maintenance of the mailing lists is important to fostering robust competition.

³¹ - If you do receive names of firms from the consultant that prepared the specifications, it is recommended you try to ensure there are no conflict of interest situations existing (e.g., the recommended firm is wholly-owned subsidiary of the specification preparer) or that the specifications are not drafted in such a manner as the only product that will meet the specification requirement is the product of the firm they want added to the list. Don't let this caveat discourage your solicitation of recommendations from that consultant (they are a very good source), just be sensitive to the firms provided.

Management of Solicitation Mailing Lists - You are now ready to issue your solicitation using the list that has been developed. There are a number of management issues associated with the list at this time:

- When mailing the solicitation to the entities on the list, some agencies include a post card indicating that if the entity does not respond to the solicitation (furnish a bid or proposal) it will be removed from the list for future solicitations unless they indicate (on the post card) that they want to be included on future lists. This is a practical recognition that the issuance of solicitations is an expensive process for the agency and only entities that have a real interest in the procurements should receive future solicitations.
- If you have a separate mail room, that group may be responsible for the actual physical issuance of the solicitation. You may wish to double check that the list of entities furnished for the solicitation is the same as the list you have maintained -- be particularly concerned that the incumbent contractor (if there is one) is on the list. Notify the mail room that if a solicitation is returned because of an incorrect address or no forwarding address is available for the entity, you are to be notified immediately so that you can try to determine the cause of the return.

Once the solicitation has been issued, using the mailing list to ensure that any solicitation amendments are furnished to all entities that received the original solicitation is important, as discussed in Section 4.3.2.5, "Amendment of Solicitations."

After the solicitation process is completed, the final administrative task associated with the mailing list is to update it. Indicate which firms on the list responded to the solicitation, which firms did not but asked to receive future solicitations (if you asked for this), and which firms did not respond nor indicate they wanted future solicitations. An updated list will make preparation of the next solicitation that much easier to accomplish.

4.3.2.3 Solicitation

REQUIREMENT
<p>§ 9.c.(2) of FTA Circular 4220.1E requires that invitations for bids be issued with sufficient time to prepare bids prior to the date set for opening the bids. Further, the invitation for bids will include any specifications and pertinent attachments and shall properly define the items or services sought in order for the bidder to properly respond.</p> <p>§ 9.d.(1) of FTA Circular 4220.1E requires that requests for proposals identify all evaluation factors along with their relative importance.³²</p>

³² - While the IFB requirements of § 9.c.(2) are good practices for both IFBs and RFPs, the evaluation criteria requirement of § 9.d.(1) is relevant only to RFPs and is discussed in Section 4.5.1, "Solicitation & Receipt of Proposals."

DISCUSSION

Your solicitation, whether an invitation for bids or a request for proposals, identifies the procurement, the agency and the contact person(s). It contains simple, clear instructions for preparing an offer, often including a checklist of the items in the offer. It clearly states the time and manner for submitting the offer, and the length of time for which the offer must remain firm (not subject to withdrawal). Many agencies use a three-part, one page form for simple bids; called a "solicitation, offer, and award form." The form invites bids on a list of items, provides space for prices and the bidder's execution of the offer, and space for the agency acceptance.

In more complex procurements where the specification or scope of work is more extensive, a two-part "Offer and Award" form incorporates the specification by reference but still crystallizes the essence of the solicitation in one page to be signed and submitted by the offeror, and signed upon award by the contracting officer. The most expeditious procurements often result from the inclusion of a complete contract in the solicitation. When this is incorporated in the offer, no further terms have to be discussed or executed when the agency accepts the offer.

It is important not to include any unnecessary requirements and keep the solicitation as simple as possible. Large or complex solicitation packages discourage some potential offerors.

Best Practices

Regardless of the method used, there are certain common elements that will be present in a solicitation issued under either the competitive bidding or competitive proposal method of procurement.³³ Many transit properties have developed procurement forms that detail what is included as "boilerplate" in the solicitation process and include the common elements of both methods. Other properties have established, as a procedure, a requirement that "boilerplate" common provisions be included in all solicitations that are then prepared as originals for each procurement. Regardless of which method you use (or any variation of them), the common elements include:

³³ - As a matter of information only, reference is made to the FAR § 14.201-1 and 15.406-1 for the "Uniform Contract Format" and FAR § 14.201-9 for the "Simplified Contract Format" used in bidding fixed price contracts. These are optional formats used by Federal departments which include a good discussion of what is included in those formats and why.

Common Solicitation Contents (IFB and RFP)

1. **A form which acts as the solicitation document** - When signed by the bidder or proposer, this acts as the offer which, if accepted by the contracting officer or buyer, results in a binding contract. Although it is typically a single page, it is not unusual for the acceptance document (the contract) to be a separate form. The form typically identifies:
 - A solicitation number for reference;
 - Who to contact for questions;
 - If there will be a pre-bid or pre-proposal conference and where and when it will be held;
 - The date, time, and place bids or proposals are to be received;
 - What additional documents are included in the solicitation and what documents will be included in the contract;
 - Space for the price (offer) to be included;
 - Space where amendments to the solicitation can be acknowledged;
 - Space where the firm can be identified; and
 - Space for the firm official to sign and date the bid or proposal.

If the form is multi-purpose and also acts as the contract, it will typically have space for the contract number, contract amount, line items awarded (if applicable), and a place for the contracting officer to sign and date the contract.

If the instructions are lengthy, and because of the many certification forms typically required, it is becoming more common to provide a separate checklist of all the documents or other submissions required in a responsive offer.

Of special importance is the **address to which offers should be submitted**. Many agencies utilize post office box addresses for their mail, and that is all that is included in the solicitation. All solicitations normally clearly indicate a mailing address to which offers can be mailed as well as a street address to which offers can be delivered, because of the increased use of overnight and courier services. If your agency has the ability, it is recommended that you have a

unique post office box number to which only offers are mailed. In your "delivery" address, you reduce errors by including a specific room number to which offers should be delivered.³⁴

2. **A document that describes the various representations and certifications that are required to be made by the bidder or offeror in conjunction with the procurement at the time of bid or proposal submission.**³⁵ Many of these relate to responsibility-type issues and typically include:

- A representation as to the type of business the offeror is (individual, partnership, sole proprietorship, etc.);
- A representation as to the DBE status;
- A representation that no gratuities have been offered or given with a view toward securing the contract;
- A certification of independent price determination (prices in offer have been arrived at independently without any communications for the purposes of restricting competition);
- A certification regarding compliance with the DBE provisions of the contract;
- A certification of restrictions on lobbying;³⁶
- A certification regarding debarment, suspension, ineligibility and voluntary exclusion;³⁷

³⁴ - A very helpful item to include with your solicitation package is an address label which includes the exact address you want offers mailed to and a separate address label which includes your street address and room number for offers that are delivered to you. With these labels, offerors can affix the applicable one to their offer and you will be assured it is coming to the right place. It is also a good idea for you to include the solicitation number on the labels which is of aid to your mailroom and your staff responsible for receipt of offers.

³⁵ - These representations and certifications have legal significance that should not be overlooked by either the offeror or the agency. The offeror certifies, for instance, that it is not presently debarred or suspended by any federal agency. The contracting officer can rely on that certification and does not have to "look behind it" in determining the firm's responsibility. If it is later discovered that the firm was in fact debarred by a federal agency, it has made a false certification. There are administrative sanctions that can be imposed (contract terminated for default) and possible criminal sanctions under either federal or state laws (or both) for submitting a false statement.

³⁶ - This certification is discussed in more detail in Section 4.3.3.2.3, "Lobbying Certification."

³⁷ - This certification is discussed in more detail in Section 4.3.3.2.1, "Certification Regarding Debarment, Suspension, and Other Responsibility Matters."

- A certification regarding compliance or non-compliance with the Buy America provisions of the Federal Transit Act and 49 CFR Part 661 and;³⁸
 - Any submissions required by state law.
3. **A document that includes solicitation instructions and conditions** - These typically include instructions relating to: offer preparation; instructions relating to acknowledging amendments to the solicitation; rules relating to late submissions, modifications and withdrawals of offers; instructions relating to the DBE participation goals and program; instructions as to how the contract will be awarded; advice as to agency and FTA bid/proposal protest procedures; advice as to ability of agency to cancel the solicitation; and establishment of an order of precedence covering how inconsistencies between provisions of the solicitation are to be resolved.
 4. **A document that includes special contract requirements or provisions (as opposed to general provisions) relating to this particular solicitation and contract that are not addressed elsewhere in the solicitation** - These provisions typically address such things as bonding requirements; insurance requirements; any special permits or licenses required; what property the authority will furnish the contractor and rules relating to that property; liquidated damages; warranties; indemnity provisions; options; contract administration; and rules relating to royalties and patents. If you are going to award a cost-type contract, special provisions relating to those contracts are typically included in the special provisions.
 5. **Special provisions required by the FTA through FTA Circular 4220.1E or the Master Agreement which must be included in the solicitation and the contract** - Model clauses for compliance with these requirements are discussed in Section 8.1 and Appendix A.1, and include such provisions as EEO clauses; affirmative action clauses; DBE program clauses; Contract Work Hours and Safety Standards Act provisions; Davis-Bacon Act provisions; Title VI of the Civil Rights Act of 1964 compliance provisions; Clean Air and Water Acts provisions; Energy Policy and Conservation Act provisions; Cargo Preference Act clause; Buy America Provisions; Officials Not to Benefit clause, and Restrictions on Lobbying provisions. Some properties include these as part of the special provisions document, and state law may require similar provisions.
 6. **The contractual requirements of the DBE programs** - (Sometimes included in special provisions.) Although the DBE programs for FTA funded projects must comply with 49 CFR Part 23, the contractual language details included in the contracts vary between the individual authorities. Chapter 8 includes model DBE contract clauses that could be used in your contract.

³⁸ - This certification is discussed in more detail in Section 4.3.3.2.2, "Buy America Certification."

7. **The last of the "boilerplate" forms are the general provisions.** You may have different forms for construction services, A&E services, supplies, services contracts and cost type contracts. It is in the general provisions that you include such clauses as: changes clause; termination for default and convenience; inspection; assignment; the impact of federal, state and local taxes; differing site conditions; excusable delay; variation in quantity; disputes; governing law; indemnification; order of precedence; pricing of adjustments; examination of records; and payment terms.
8. **Each solicitation will have some sort of specification or statement of work or scope of work describing what it is that you are buying.** As we discussed in the Specification section of the Manual, the detail furnished will vary from contract to contract, but it is against this document that you will measure satisfactory performance of the contractor -- did the contractor furnish you with what you requested?

There is no real "best" way to create your solicitation. We have presented the common elements of the solicitation and highlighted those issues or matters that solicitation documents typically address. How you package it is in many respects a function of what is already in place in your organization or, if you are creating a solicitation for the first time, a function of what your prior procurement experiences have been.

The bottom line is that you want to create a document that will get you through the solicitation and contract award process with little or no controversy and through contract performance on time and within budget while complying with the terms of your contract.

4.3.2.4 Pre-Bid and Pre-Proposal Conferences

DISCUSSION

Pre-bid and pre-proposal conferences are generally used in complex acquisitions as a means of briefing prospective offerors and explaining complicated specifications and requirements to them as early as possible after the solicitation has been issued and before offers are received. This is also an open forum for potential respondents to address ambiguities in the solicitation documents that may require clarification. Notice of the conference is included in the solicitation at the time of issuance.

Best Practices

When utilized properly, a pre-bid or pre-proposal conference is a valuable tool for both the agency and the prospective offerors. There are certain common practices and policies relating to this conference that will aid you in achieving a successful procurement.

You will decide with your customer in your solicitation preparation process whether or not you will conduct a pre-proposal or pre-bid conference. It is recommended that you hold one if you believe that your acquisition is so complex or contains peculiar requirements that can only be

addressed by holding a conference for the benefit of your prospective offerors. It may be advantageous if you anticipate that the offerors will not be familiar with your procurement process. Determine if a conference is necessary and put the time and location details in your solicitation.

If you hold a conference, it is helpful to include in your solicitation a format for questions submitted in advance of the conference that will be answered at the conference. Explain that if you have the questions in advance, better and more timely responses can be made to those questions. You normally do not preclude questions from being raised at the conference itself.

Develop an agenda for the conference and arrange to have the appropriate staff members at the conference who can respond knowledgeably to questions. In addition to the procurement official, large agencies generally have a technical representative and a representative from the DBE department, if appropriate, at the conference.

At the conference, have someone present who can develop a record of what transpired, including a sign-in list of attendees. Normally, this list is made available to attendees as a matter of information. One of the uses of this list by potential offerors is determining who else is interested in the project and who might be interested in teaming.

At the conference, advise conferees that remarks and explanations at the conference shall not qualify the terms of the solicitation, unless a written amendment is furnished to everyone. You may actually want to develop a script for this and make it a matter of practice to repeat this at every conference -- it is that important.

Your pre-bid conference or general provisions in your solicitation document may also limit the effect of unwritten statements at the conference or of any other oral or unauthorized changes or qualifications of the solicitation terms. The specifications and solicitation document must stand alone representing the contractual commitment.

During the conference, in addition to responding to any questions raised by the conferees, explain anything unusual about the special provisions or bidding conditions. Your DBE staff member may explain the DBE program and the goals set for the procurement. Your technical staff member may give an overview of the specifications or scope of work. If you have received questions in advance, you can provide both the questions and answers.

At the conclusion of the conference, determine which questions have been raised that will necessitate the issuance of a solicitation amendment. You may have received other questions during this period of time that highlighted the need for an amendment, or an issue might have been raised by internal reviews that necessitated an amendment. It is recommended that you do not leave material questions unanswered - if you don't answer them, you may end up shifting the risk for that ambiguity, conflict or other problem from the contractor back to your agency.

As soon as possible after the conference, finalize the record of the conference and promptly furnish it to all prospective offerors (those on your final solicitation mailing list); whether they were in attendance at the meeting or not. It is important that all prospective offerors be furnished the same information concerning the proposed acquisition. This can be furnished with the amendment if one is to be issued.

Although it is not normally part of a pre-bid or pre-proposal conference, if you want to offer prospective offerors an opportunity to actually visit the site (in an appropriate procurement) it is a good time to do this in conjunction with this conference. You should be sensitive to the cost offerors incur in preparing a bid or proposal and try to allow them to accomplish multiple tasks on the same trip, particularly for those entities that are traveling to your location from another city, state or country.

Mandatory Attendance – The question sometimes arises as to whether grantees may require prospective offerors to attend pre-bid or pre-proposal conferences in order to submit bids or proposals. The answer to this question is that FTA has issued no specific policy statement on this issue. However, the consensus of opinion is that attendance at pre-bid conferences should not be made mandatory. Anything that happens at a pre-bid conference to change what is expected under the contract must be included in the contract document by means of an amendment to the solicitation. It's true that a better understanding may be obtained by being present for face-to-face discussions regarding contract issues but the bottom line remains the clarity of the contract. Experience would suggest that pre-bid conferences sometimes bring out the existence of ambiguities or inconsistencies in contract language. These are then changed in the solicitation/contract and made available to all offerors. The result of this process is that changes in the contractual obligations of the parties find their way into the solicitation by means of an amendment to the original solicitation that is issued to all potential offerors.³⁹ It can also be conjectured that mandatory attendance at the conference could work a hardship on some potential bidders, especially small businesses. Mandatory attendance may also tend to promote poor contract language because of the feeling that everyone understands the intent of the contract as a result of the discussions at the pre-bid conference, with the result that clarifications to the written contract requirements are not issued.

4.3.2.5 Amendment of Solicitations

DISCUSSION

Frequently, in the course of the solicitation process and prior to receipt of offers, you will find something within the solicitation package that needs to be corrected. This is

³⁹ - FAR Part 15.201(f), for example, requires the CO to make available to "all potential offerors," upon request, any information distributed at a pre-solicitation conference. The clear presumption of the FAR is that "potential offerors" may not be (and need not be) present at the conference.

something that can be done easily and may enhance competition if the changes are significant (i.e., impact quantity, specifications, or delivery). Each recipient of the solicitation should receive the amendments and should acknowledge that receipt by the time of submitting its offer. You should consider extending the time for receipt of offers, if necessary, to permit offerors to compete effectively under the modified terms.

Best Practices

In many solicitations, someone will bring to your attention a problem with the package that necessitates a change. The problem may have something to do with the "boilerplate", changes in quantity, the specifications, delivery schedules, opening dates, or drawings. It may have to do with correcting an ambiguous provision or resolving conflicting provisions. Regardless of what (or who) requires the amendment, there are a few simple steps/considerations that are normally followed.

As we discussed in the pre-bid/pre-proposal conference section, even if a change was mentioned during that conference, an amendment to the solicitation should be issued. When you change the written terms of the solicitation, it must be done formally in writing. This serves two purposes: (1) It documents the change in writing so there are no misunderstandings, and (2) It provides the changes to offerors who were not at the conference.

As with other normally repetitive requirements in the procurement process, many agencies have adopted a pre-printed form for amending solicitations. Those forms normally include the following elements (which can also be included in your amendment if you do not use a form):

- Identify the solicitation number of the original solicitation;
- Identify the amendment number;
- Identify the contact person and phone number within your department for further information;
- Indicate whether or not the time and date specified in the original solicitation is changed as a result of the amendment;
- Advise offerors of the need to and how they should acknowledge receipt of the amendment;
- Advise offerors what the changes are; and
- Have the amendment signed by the appropriate procurement official, most frequently the contracting officer.

Amendments are typically sent to every firm that has been furnished the original solicitation (the IFB or RFP). Once the solicitation has been issued, using the mailing list to ensure that any solicitation amendments are furnished to all entities that received the original solicitation is

important, as discussed in Section 4.3.2.2, "Solicitation Mailing List." This is an obvious issue, but some agencies don't realize there is a problem until bids are received that do not acknowledge a material amendment. You then declare the bidder non-responsive. Some agencies include clauses in solicitations making it the offeror's responsibility to obtain addenda. While this may assist in overcoming a protest from a bidder held non-responsive, it will not necessarily transform the bid into a responsive or acceptable one.

You cannot over-emphasize the administrative importance of furnishing amendments to all entities who received the original solicitation. It is important to have a single point of contact within your organization responsible for issuing solicitations and addenda. Some agencies post a notice at the receipt of offers of the addenda that have been issued. While there is little an offeror can do other than hold back the offer at that point, the offeror may be able to perfect the acknowledgment of addenda and live with the rest of the offer as prepared without the addendum.

One of the critical issues when issuing an amendment is whether or not to extend the time and date for receipt of offers. You should consider the impact of the changes you are making in light of the time it will take a prudent offeror to incorporate those changes. This includes the time impact on the work already done in preparing the bid or proposal. The impact could be minimal or very significant and there is no "cookie cutter" answer to how much additional time, if any, should be allowed -- you want to allow sufficient time for the changes to be considered in a meaningful manner.

One "warning:" this may be the first time in the solicitation process you run into the schedule your internal customer has established. Your instincts may say that the time and date set for receipt should be extended but your customer may say the change is negligible and no time is warranted. Early planning and communication with your customer may build in some time for changes like this. If not, the consequences may be fewer competitors, a protest, pricing that includes unnecessary contingencies, or post-award discovery of specification conflicts that require compensation for changes.

If a decision is made to amend the solicitation with bids due in two days, consider notifying prospective offerors by telephone, FAX, or telegram of the new date and time and follow that notification up with an amendment to the solicitation. If you have already received offers in your bid room, it is recommended that you notify the offeror of the amendment to inquire if they want their offer returned.⁴⁰

⁴⁰ - If you cannot identify who the offeror is in this situation without opening the bid or proposal, it is recommended that you open it in the presence of a witness. Write down the name and address of the offeror only, and reseal the envelope or package. Return it to the offeror with a cover letter that the package was opened only so the offeror could be identified. It is also recommended that a memorandum to the file be made by you and your witness describing what happened and why. You might want to copy the outside of the envelope to show no identification but it is recommended that no copies be made of any of the offer documentation.

There are special rules regarding solicitation amendments that incorporate revisions or modifications of Davis-Bacon Act wage determinations. These rules are discussed in detail in Section 8.1.3.

If, because of schedule distress, you proceed with the procurement without a necessary amendment, adverse consequences are likely when the change is brought forward with the ultimate contractor and the contract must be modified.⁴¹ It is even possible that the change would constitute a cardinal change if attempted after award, and would require a new competition; in this case you have little choice but to amend and postpone.

4.3.3 Common Elements of Offers

4.3.3.1 Receipt of Offers

DISCUSSION

The culmination of your solicitation process is the receipt of bids or proposals. Regardless of the method used, great importance is attached to the time of receipt. Preparations are made to ensure that offers are not delayed and are properly recorded. Your solicitation may contain a checklist of items to be submitted with the offers, and the individual submittals are discussed in the following sections.

Best Practices

Timeliness⁴² - Why do you care if a bid or offer is late or not? If the price is the lowest or the best response of the group, what difference does it make if it was received on time or not? The rationale for having rules against considering late bids or offers is tied to the importance of maintaining the integrity of the competitive procurement process and that this outweighs the possibility of any savings the public entity might realize in a particular procurement by considering a late offer.

Unfortunately, late offers are such a common problem that language has been developed to address what rules would be followed if an offer is received late.⁴³ That language is typically

⁴¹ - See Section 9.2, "Changes" for a more general discussion of the costs of changes.

⁴² - See also the discussion of timeliness in Section 4.4.2, "Bid Opening."

⁴³ - As a matter of reference, your attention is invited to FAR § 52.214-7 and 52.215-10 for language addressing late submissions, modifications, and withdrawals of offers that is incorporated in FAR-covered solicitations for IFBs and RFPs respectively. For commentary in the FAR itself relating to those solicitation clauses, see FAR § 14.304 and 15.412 respectively. Primarily because of the body of law that has developed interpreting these clauses, many transit properties have either adopted this language or have modified it slightly to meet their individual requirements.

included in the solicitation so that offerors know ahead of time what the consequences will be if their offer is received late at the place designated for receipt. A solicitation provision, and the explanatory rules relating to the provision, generally include some or all of the following:

1. **What are the consequences of an offer that is received after the exact time specified for receipt?** Generally, the offer will not be considered at all.⁴⁴ You may want to carve out exceptions to this absolute rule, and some will be suggested below. These exceptions consist generally of the sets of circumstances which you can determine in advance and set out in your solicitation which, when proven within a specified time by the offeror, would demonstrate that the delay was due solely to some independent event or action, such as the documented failure of a registered delivery service. If the offer is received after the contract is awarded, there are generally no exceptions. That offer will not be considered at all.
2. **If you decide to allow consideration of "late" offers, under what conditions will you consider them?**
 - *Will you consider offers that are hand-delivered late?* It is the responsibility of the offeror to make sure its offer is at the place designated in the solicitation by the time indicated. If it chooses to use a delivery/courier service or deliver its offer in person, it must allow sufficient lead time to get it there on time. Normally, such excuses as "I was in an accident", "The traffic was heavier than usual", or "I couldn't find a place to park" are not acceptable to excuse a late hand-delivered offer. If, however, the reason the proposal is late is because of problems at your agency (e.g., your security guard directed the courier to the wrong room) you may want to consider those excuses -- in effect, you (the agency) were the reason the offer was late.
 - *Will you consider offers that were mailed but not received until after the time and date set?* It is not unusual to consider mailed offers if certain facts can be established. If they were sent by registered or certified mail five calendar days (or some greater or lesser number of days) prior to the date specified for receipt of offers, they will be considered if the postmark on both the envelope or offer wrapper and the original receipt clearly establishes the offer was mailed before the five day window. If you want to allow this exception, a provision which clearly and unambiguously establishes the rules which will be acceptable to you will save extended argument and resentment in the inevitable test cases.

⁴⁴ - Some practitioners erroneously refer to the consequences of a late offer as one of "non-responsiveness." In fact, you never open the offer (unless needed to for identification purposes) and thus cannot determine whether it is responsive to the material requirements of the solicitation (the general definition of responsiveness). Had the offer been received on time, it may well have been responsive but, in this case, the offer is not even considered!

- *Will you consider an offer that was mailed (not registered or certified) but you are able to ascertain that it was mishandled in the mailroom?* It was properly addressed and, in the normal course of business at your agency, should have been delivered to your bid room on time. However, it was sent to the wrong department or fell behind a desk in the mailroom. Again, if you can establish it was received in your agency prior to the time and date set for receipt but didn't get to you until "late", your policy might want to allow consideration of that offer. If so, spelling that exception out in your solicitation clause avoids many questions.
- *Will you consider offers that were sent via an "overnight" service? If so, which service(s) will you consider?* It is not unusual to limit the service to the U.S. Postal Service Express Mail Next Day Service and, even in that limited situation, the package must be dispatched by 5:00 p.m. at the place of mailing two working days prior to the date set for receipt of offers. If you include Federal Express and other reliable overnight courier services, be sure you spell out exactly what service(s) you will allow.
- As a result of an increase in procurements being conducted via electronic commerce, rules have been developed addressing late offers received through that medium. Generally, the offer must have been received by the contracting agency no later than 5:00 p.m. one working day prior to date specified for receipt of offers. If you are into electronic commerce procurements, you need to consider the consequences of late offers through that medium as well.

"I've got this great policy patterned after the FAR clauses on consideration of late offers and here it is, a day after I opened bids and another bid comes to my office through the mail. What do I do?" If it was mailed "regular" first class mail, you normally would retain the bid, unopened, and advise the offeror that its bid was received late and will not be considered. If the envelope or wrapping indicates it was mailed registered or certified (the clause may have been complied with), you need to notify the bidder that its bid was received late and will not be opened unless, by a reasonable date established in your notification, it can furnish you with the original post office receipt establishing compliance with the exceptions you have adopted in your provision.

Because these issues have such a high probability of being protested or litigated, it is recommended that as soon as you become aware of the receipt of a late offer, you notify your legal counsel for advice on what action to take. Many of the exceptions recognized in the law are very fact-intensive and care must be taken in ascertaining all of the facts and responding appropriately to what facts existed.

Completeness of Offer - Besides the obvious things (like the bid or price schedule), there are a number of matters that are normally submitted with the offer, whether it is a bid or a proposal. These items either are required by law or the natural development of the procurement process

has resulted in this being a good (or the best) time for some things to get into the hands of the procurement officials. Many of these matters are taken care of in the various representations and certifications that are submitted with the offer and which normally address responsibility-type questions that aid in processing the ultimate contract for award. Others, such as acknowledgment of solicitation amendments and bid bonds can go to the issue of whether the offeror is responsive -- did it consider a material amendment when it submitted its offer?

In our discussion on common elements of the solicitation (see Section 4.3.2.3), we covered the common practice of developing a separate document to include in your solicitation for all the representations and certifications that you want each offeror to complete and return with its offer to you. If they are all in one place, it is much easier for the offeror to ensure it has furnished you everything you need as well as you don't have to worry about forgetting to ask for something -- Everything you need is on one form.

4.3.3.2 Federally Required Submissions with Offers

REQUIREMENT

§ 16 of FTA Circular 4220.1E, entitled "Statutory and Regulatory Requirements" states that:

"A current but not all inclusive and comprehensive list of statutory and regulatory requirements applicable to grantee procurements (such as Davis-Bacon Act, Disadvantaged Business Enterprise, Clean Air, and Buy America) is contained in the FTA Master Agreement.⁴⁵ Grantees are responsible for evaluating these requirements for relevance and applicability to each procurement. For example, procurements involving the purchase of iron, steel and manufactured goods will be subject to the 'Buy America' requirements in 49 CFR Part 661. Further guidance concerning these requirements and suggested wording for contract clauses may be found in FTA's Third Party Procurement Manual."

DISCUSSION

The FTA has included a comprehensive listing of contract clause requirements in the Master Agreement. A copy of that Agreement is an appropriate item for the procurement official's desk book of reference materials. We will, in this subsection, highlight generally the federal requirements that are germane to our discussion here of items that should be submitted to the transit property as part of the solicitation process involving either IFBs or RFPs. We will also discuss in more depth four specific certifications that are federally required.⁴⁶

⁴⁵ - These requirements and applicable clauses are discussed in depth in Chapter 8.

⁴⁶ - See also Chapter 8, "Contract Clauses," and Appendix A.1, "Federally Required Model Clauses."

4.3.3.2.1 **Certification Regarding Debarment, Suspension, and other Responsibility Matters**

REQUIREMENT
Executive departments and agencies shall participate in a government-wide system for (nonprocurement) debarment and suspension. ⁴⁷

DISCUSSION

Much like the "common grant rule" (49 CFR Part 18), the federal government has adopted a "common rule" on the government-wide effect of debarments and suspensions. DOT's implementation of that common rule is found at 49 CFR Part 29. The policy behind this rule is that a person or entity who is debarred or suspended shall be excluded from Federal financial and non-financial assistance and benefits under Federal programs and activities. As stated in the regulations, debarment ⁴⁸ and suspension ⁴⁹ are serious actions which should be used only in the public interest and for the protection of the federal government and not for the purposes of punishment. ⁵⁰

In order to protect the public interest, it is the policy of the federal government to conduct business only with responsible persons. ⁵¹ Persons who have been debarred or suspended are not "responsible" and, unless approved by the FTA, contracts will not be awarded to those persons. ⁵² The certification required by this common rule must be submitted with the offers, and is also an aid to expedite the procurement process by providing critical information as to the responsibility determination that the contracting officer must ultimately make. ⁵³

⁴⁷ - 49 CFR Part 29, "Debarment and Suspension (Nonprocurement) and Governmentwide Requirements for Drug-Free Workplace (Grants)."

⁴⁸ - "Debarment. An action taken by a debaring official in accordance with these regulations to exclude a person from participating in covered transactions. A person so excluded is 'debarred'." 49 CFR § 29.105.

⁴⁹ - "Suspension. An action taken by a suspending official in accordance with these regulations that immediately excludes a person from participating in covered transactions for a temporary period, pending completion of an investigation and such legal, debarment, or Program Fraud Civil Remedies Act proceedings as may ensue. A person so excluded is 'suspended'." 49 CFR § 29.105.

⁵⁰ - 49 CFR § 29.115(b).

⁵¹ - 49 CFR § 29.115(a).

⁵² - See § 3b of the Master Agreement, Form FTA MA(12).

⁵³ - Because it is discussed as an aspect of responsibility, and can be objectively determined at any time up to the time of award, late submission of the debarment certification can be permitted.

Best Practices

The debarment and suspension certification found at Appendix B of Part 29 (and as set forth in Appendix A.1 of this manual) is mandatory for use in contracts over \$100,000 involving federal funds.

Include the instructions for the certification as well as the certification. Don't try to save space in your solicitation by only including the certification -- the instructions are too critical. It is recommended that you make this certification a topic at your pre-bid or pre-proposal conference if the resulting contract will exceed \$100,000.

Even though you request this certification from all offerors, failure to receive it with a bid (in the sealed bidding method of procurement) is not a responsiveness question -- this goes to a contractor's responsibility and may be received and talked about after bids are received. It must be received prior to award.

The certification and regulations allow you to rely on your contractor's certification that it is not debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in your contract as an element of your responsibility determination. However, if you know that the certification is erroneous, you may not rely on the certification.

The certification and regulations state that you may, but are not required to, check the *List of Parties Excluded from Federal Procurement and Nonprocurement Programs* to determine the eligibility of your contractor and its subcontractors. The *List of Parties Excluded from Federal Procurement and Nonprocurement Programs* is available from the General Services Administration in either a printed version or an electronic version. The printed version is published monthly and may be obtained by purchasing a yearly subscription.⁵⁴ The electronic version is updated daily and provides access to the names of firms and individuals on the list through your computer.⁵⁵ GSA also offers a telephone inquiry service to answer general inquiries about entries on the *List* at (202) 501-4873 or 4740.⁵⁶

Although not required by the FTA, some transit properties check the *List* on all their procurements, whether or not federally funded. Even if you are using local dollars, do you want to award a contract to, or approve a subcontract for, a contractor/subcontractor that has been

⁵⁴ - You may subscribe by writing the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 or by calling the Government Printing Office Inquiry and Order Desk at (202) 783-3238.

⁵⁵ - The list can be accessed 7 days a week, 24 hours per day and aside from normal costs of local or long-distance telephone calls, the access is free to the user. To obtain a copy of the user's manual for accessing the system, contact GSA at (202) 501-4740.

⁵⁶ - GSA advises that responses to these inquiries should be furnished within one working day.

debarred, suspended, or proposed for debarment by the federal government? Is that entity responsible? You may at least want to inquire about the action prior to making your final responsibility determination. If you know you would want to use debarment information in a non-Federally funded procurement, you may wish to mention it in your solicitation's responsibility clause.

If the apparent awardee of your solicitation (e.g., the lowest responsive bidder) has submitted a conditioned certification, you can use that information in arriving at your responsibility determination and find the firm non-responsible. However, the firm may have submitted information you believe is extenuating enough to warrant award consideration. Remember, if you want to award a contract to a firm that has submitted a conditioned certification, you cannot make an award until you have received approval for the award from the FTA.⁵⁷ It is recommended as soon as it appears you will be faced with this situation, you notify your regional FTA office for guidance and instructions on what information they need and submit it promptly.

4.3.3.2.2 Buy America Certification

REQUIREMENT
<p>§ 14.a of the Master Agreement states that:</p> <p>a. <u>Buy America</u>. The Recipient agrees to comply with 49 U.S.C. § 5323(j), FTA regulations, "Buy America Requirements," 49 C.F.R. Part 661, and any implementing guidance FTA may issue.</p>

SUMMARY

The Buy America requirements apply to all contracts for rolling stock, steel, iron, or manufactured products with a value greater than \$100,000. For these contracts, the grantee must obtain a certification of compliance or non-compliance with the Buy America requirements with each bid or offer. If the bidder or offeror is not able to comply by using the requisite American content and certifies non-compliance, it may qualify for a waiver, which the grantee must request before award. FTA may grant a waiver if it is found that it is in the public interest, there are no U.S. products available, or there is a 25 percent price-difference between the foreign and domestic products.

REQUIREMENTS

Steel and iron: All steel and iron manufacturing processes must take place in the U.S. These requirements apply to all construction materials made primarily of steel or iron and used in

⁵⁷ - See § 3b of the Master Agreement, Form FTA MA(12).

infrastructure projects such as transit or maintenance facilities, rail lines, and bridges. The requirements do not apply to steel or iron used as components or subcomponents of other manufactured products or rolling stock. 49 C.F.R. 661.5(a), (b), and (c).

Manufactured products: The product itself must be manufactured in the U.S. with 100 percent U.S. components; foreign subcomponents are allowed. 49 C.F.R. 661.5(d).

Construction contracts - Except for the iron and steel used in a construction contract, FTA treats the procurement of a construction project as the procurement of a "manufactured product" subject to 49 CFR 661.5(d). Final assembly of the project takes place at the construction site, and items directly incorporated into the project at the job site are considered "components." For instance, if the deliverable under a particular contract is the building of a passenger terminal, the terminal itself is the end product, and the main elements incorporated into the terminal, e.g., shelters, elevators, and platforms, are components of the end product. These main elements are generally specified in the construction contract. *However, you must first satisfy the steel and iron requirements, as discussed in 661.5(b) and (c), before applying the manufactured product section as discussed above, to the balance of the construction contract.*

Rolling stock (including train control, communication, and traction power equipment): The cost of components and subcomponents produced in the U.S. must be more than 60 percent of the cost of all components and final assembly must take place in the U.S. 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11. Part 661.11 is a road map for grantees and contractors to follow when determining compliance with the domestic content requirements for rolling stock. It discusses in detail what constitute components and subcomponents. It also illustrates train control equipment, communication equipment, and traction power equipment (at subsections (t), (u), and (v)); and provides a list of typical components of rail and bus rolling stock in the Appendix. The March 18, 1997, Dear Colleague letter lays out the requirements for final assembly. The March 30, 2001, Dear Colleague letter discusses calculation of domestic content, specifically noting that all items included in the list of typical components in the Appendix to 661.11 must be considered components, not subcomponents. For more discussion, please see the Notice of Dear Colleague letter published in the Federal Register. 66 Fed. Reg. 32412 (June 14, 2001).

[Note: The Buy America requirements are different from the *Buy American* requirements. The latter applies to direct federal procurements. The Buy America regulations discussed here, apply only to federal assistance programs funded by the Federal Transit Administration.]

Best Practices

If you spend much time in procurement, a copy of 49 C.F.R. Part 661 is one of those "mandatory" documents for your procurement desk book. You will be constantly referring to these rules throughout your career in transit, whether you are buying buses, rail cars, computers or a construction project. Because these rules are so critical, it is also important that you keep abreast of FTA guidance and final rules impacting these regulations as published in the *Federal Register* or on the website. FTA's Buy America web page is

http://www.fta.dot.gov/legal/buy_america/14328_ENG_HTML.htm. The web site has links to the regulations, all relevant Federal Register publications, waivers and letters of interpretation, frequently asked questions, rolling stock handbooks, and related Dear Colleague letters.

Notice Requirements

When a contract for rolling stock, steel, iron, or manufactured products is estimated to exceed \$100,000, 49 C.F.R. 661.13 requires that the solicitation include "an appropriate notice of the Buy America provision." A model clause addressing that requirement is included in Appendix A.1, "Federally Required Model Clauses" of this Manual. This suggested language is written as a preamble to the certifications required by Parts 661.6 and 661.12.

Other grantees have satisfied this notice requirement in their general or special provisions by including language substantially as follows:

Buy America Provision

This solicitation and the resulting contract are subject to the Buy America requirements of 49 U.S.C. §5323(j) and the Federal Transit Administration's implementing regulations found at 49 C.F.R. Part 661. These regulations require, as a matter of responsiveness, that the bidder or offeror submit with its offer a completed certification in accordance with Part 661.6 or 661.12, as appropriate. These certifications are set forth in this solicitation at [identify where the certifications are].

Certification Requirements

49 C.F.R. 661.13(b) requires that you include in your solicitation a requirement, as a condition of responsiveness, that the bidder or offeror submit with the bid or offer a completed Buy America certificate in accordance with Part 661.6 for steel, iron, and manufactured products, or Part 661.12, for rolling stock (including train control, traction power, and communication equipment). In a sealed bid, the bidder is bound by its certification and cannot change it after bid opening, except as provided for clerical error. If the bidder does not submit a signed certification with the bid, submits the wrong certification of compliance, or certifies both compliance and non-compliance, that bid is non-responsive and cannot be considered. Except as discussed below for clerical error, you cannot go back and ask, in a competitive sealed bidding procurement, for the bidder to complete the certification and submit it after bids are opened.

In competitive negotiated procurements (i.e., requests for proposals), certifications submitted as part of an initial proposal may be superseded by subsequent certifications submitted with revised proposals, and the certification submitted with the offeror's final revised proposal (or best and final offer) will control. However, where the grantee awards on the basis of initial proposals without discussion, the certification submitted with the initial proposal will control.

The clerical error provision allows bidders and offerors to change a certification of non-compliance to one of compliance *only if the bidder or offeror certified wrongly due to a clerical or inadvertent error*. 49 C.F.R. 661.13(b). More explanation of this provision can be found in the Final Rule published in the Federal Register. 68 Fed. Reg. 9797 (Feb. 28, 2003). If the bidder or offeror certifies it will comply with the Buy America requirements, it will not be eligible later for a waiver of those requirements. 49 C.F.R. 661.13(c).

The certification requirement for procuring steel, iron, or manufactured products is at 49 C.F.R. Part 661.6. This certification language refers to sections of the Surface Transportation Assistance Act of 1982 (steel and manufactured products) and not to the most recent version of the statute, found in 49 U.S.C. 5323(j) (steel, iron, and manufactured products). The certification language in Appendix A.1, "Federally Required Model Clauses" accurately references the correct statutory provision. You should use this until the FTA publishes technical corrections to this C.F.R. section. The bidder or offeror has a choice of two certifications to complete, either:

- it will comply with 49 U.S.C. 5323(j)(1) and 49 C.F.R. 661.5; or
- it cannot comply with 49 U.S.C. 5323(j)(1) and 49 C.F.R. 661.5, but may qualify for an exception under 49 U.S.C. 5323(j)(2)(A), 5323(j)(2)(B), or 5323(j)(2)(D), and 49 C.F.R. 661.7.

The certification requirement for procuring rolling stock (including traction power, train control, and communication equipment) is at Part 661.12. This certification language also refers to sections of the Surface Transportation Assistance Act of 1982 and not to the most recent version of the statute, found in 49 U.S.C. 5323(j). The certification language for 661.12 in Appendix A.1, "Federally Required Model Clauses" of this Manual accurately references the correct statutory provision. You should use this until the FTA publishes technical corrections to this C.F.R. section. The bidder or offeror has a choice of two certifications to complete, either:

- it will comply with 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11; or
- it cannot comply with 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11, but may qualify for an exception under 49 U.S.C. 5323(j)(2)(A), 5323(j)(2)(B), or 5323(j)(2)(D), and 49 C.F.R. 661.7.

Waiver Requirements

If a bidder or offeror executes the certification indicating that it cannot comply but may qualify for an exception, you must review the circumstances to determine if you should request a waiver from FTA. If you do not request a waiver or you request it and it is denied, you must award to a compliant bidder or offeror if you plan to use federal funds. The Buy America requirements may be waived in three specific instances:

- If the requirements are inconsistent with public interest - Unless a general exception is set out in the Appendix to Part 661.7 of the regulation, this waiver requires a determination

by the FTA Administrator, on a case-by-case basis, that to require compliance is "inconsistent with the public interest." 49 U.S.C. 5323(j)(2)(A) and 49 C.F.R. 661.7(b).

- If the materials are not available in from the U.S. - This waiver requires a determination by the FTA Regional Administrator that the materials for which a waiver is requested are not produced in the U.S. in sufficient and reasonably available quantities and of a satisfactory quality. If no responsive and responsible bid is received offering an item produced in the U.S., it will be presumed the conditions exist to grant this non-availability waiver. In the case of a sole source procurement, the waiver will be granted only if the grantee provides sufficient information which indicates that the item to be procured is only available from a single source or that the item to be procured is not produced in sufficient and reasonably available quantities of a satisfactory quality in the U.S. 49 U.S.C. 5323(j)(2)(B) and 49 C.F.R. 661.7(c).
- If the cost of the domestic product is more than 25 percent higher than the foreign product - This waiver requires a determination by the FTA Regional Administrator that including a domestic item or domestic material will increase the cost of the contract between the grantee and its supplier of that item or material by more than 25 percent. This waiver cannot be applied to components or subcomponents. 49 U.S.C. 5323(j)(2)(D) and 49 C.F.R. 661.7(d).
- General waivers - Appendix A to Part 661.7 lists specific waivers for which applications are not necessary. This list includes all waivers published in 48 C.F.R. 25.104,⁵⁸ Chrysler vans, microcomputers and small purchases under \$100,000. A general waiver has also been granted under the rolling stock requirements of Part 661.11 at Appendix A. Under this waiver, the provisions of this section do not apply when foreign source spare parts for buses and other rolling stock whose total cost is 10 percent or less of the overall project contract cost are being procured as part of the same contract for the major capital item. If the product offered qualifies for a permanent discussed here, the bidder or offeror should certify compliance with Buy America.

Generally, only grantees may apply for a waiver. However, if a bidder or offeror is seeking a waiver under Part 661.7(f)(waiver for component or sub-component under rolling stock procurements) or Part 661.7(g) (waiver for specific item used a manufactured product), FTA will consider a request for waiver directly from the bidder, offeror, or supplier.

The grantee may request a waiver from FTA when there is a viable public interest argument supporting award to a non-compliant bidder or offeror when there is a compliant bidder or offeror; when there are no compliant bids or offers (including a justified sole source to a non-compliant bidder or offeror); or when there is more than a 25 percent price difference between

⁵⁸ - The text of the regulation refers to Part 25.108, but this section has been moved to Part 25.104.

the compliant and non-compliant bid or offer. *Otherwise, the grantee must award to the compliant bidder or offeror meeting all requirements for award.*

Applications for waivers are processed following 49 C.F.R. 661.9. Except as noted above, the waiver request must be obtained "in a timely manner" through the grantee. Grantees should therefore review the bids or offers and request a waiver, if one is necessary, before award. The grantee's request for waiver must be made in writing and include all facts and justification to support the waiver, and be submitted to the FTA Administrator through the appropriate FTA Regional Office. The Administrator (or Regional Administrator, in cases where authority has been delegated) will issue a written determination setting forth the reasons for granting or denying the waiver.

Investigations

FTA's Buy America investigative procedures establish a presumption that a bidder who has submitted a Buy America certificate is in compliance with the regulation. FTA will investigate if it finds that this presumption has been overcome. FTA may initiate an investigation on its own or in response to a third-party petition. The regulation requires that the petition include a statement of the grounds of the petition and any supporting documentation. 49 C.F.R. 661.15.

Intentional Violations

49 C.F.R. 661.18, states that any person determined by a Federal agency or court to have intentionally affixed a false "Made in America" label to, or misrepresented the origin of, a product that was used in the project but which was not produced in the United States is ineligible to receive an FTA-funded contract.

For instance, if a person has been convicted by a court of making a false certification under these provisions, that person would be ineligible for award of a contract. If there was a violation but not a conviction, the information could still affect your responsibility determination. Similarly, if it was determined (perhaps through a suspension or debarment proceeding conducted by a federal agency) that the person falsely represented the American origin of a product, that person would similarly be ineligible for award of a contract.

If the violation is discovered after award, the contractor remains responsible for performing the contract, including satisfying the Buy America requirements. A typical resolution is to permit the contractor to substitute a different product that meets the specifications including the Buy America requirement at the contractor's expense. In rare instances, FTA may approve a public interest waiver allowing the non-compliant product to be used.

4.3.3.2.3 Lobbying Certification

REQUIREMENT

§3.d of the Master Agreement states that:

d. Lobbying Restrictions. The Recipient agrees as follows:

(1) Refrain from using Federal assistance funds to support lobbying, and

(2) Comply, and assure the compliance by each third party contractor at any tier and each subrecipient at any tier, with applicable requirements of U.S. DOT regulations, "New Restrictions on Lobbying," 49 CFR Part 20, modified as necessary by 31 U.S.C. § 1352.

DISCUSSION

The requirements set forth above have been included in all grants between the FTA and its grantees with a requirement that the certification flow down to all contractors and subcontractors for whom a contract involving federal funds in excess of \$100,000 is contemplated. The requirement has two aspects to it: First, the certification itself must be executed and returned with the bid or proposal. Second, in the event funds of any sort have been used for lobbying activities⁵⁹ by the contractor or any subcontractor; a Standard Form-LLL, "Disclosure Form to Report Lobbying" must also be completed. It is your ultimate responsibility to ensure that these certifications and disclosure forms are submitted to the FTA.⁶⁰

Best Practices

Certifications Required - In all solicitations that are expected to result in contract amounts in excess of \$100,000, the certification set forth in Appendix A to 49 CFR Part 20 must be included. The certification is also included in Appendix A.1, "Federally Required Model Clauses" of this Manual under the "Lobbying" contract provisions.

⁵⁹ - The payment to any "person" to influence or attempt to influence an officer or employee of any federal department or agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement. 49 CFR § 20.100(a).

⁶⁰ - Because the language of the regulations refers to needing the certification and applicable disclosures at time of award, unless your solicitation specified otherwise, failure to submit the executed certification with the offer would probably not be considered a responsiveness issue in a competitive bidding procurement, and would not disqualify the offer.

Although it is not required that you include a copy of the Standard Form LLL in the solicitation, it is recommended that you have a copy available to furnish to an offeror if one is requested. A copy is included in the CFR section and may be reproduced.⁶¹ A copy may also be available from your legal counsel or federal grants office because the agency had to furnish a copy to the FTA as well as part of the Grant-making process.

Timeliness - The certification (and Standard Form LLL if applicable) should be executed and returned with the bid or proposal. Because the language of the regulations refers to needing the Certification and applicable disclosures at time of award, failure to submit the executed certification with the offer would not be considered a responsiveness issue in a competitive bidding procurement.

Subcontracts - You may not always know who your prime contractor subcontracts with, particularly in fixed price contracts. It is recommended that during any pre-performance conference you have with the prime, you remind him or her of the requirement to forward the certification and disclosure statements made by subcontractors at any tier who have subcontracts in excess of \$100,000 through the tiers to the contracting officer.

4.3.3.3 Other Submissions

4.3.3.3.1 Acknowledgment of Solicitation Addenda

DISCUSSION

Although the topic has been discussed in different contexts,⁶² one of the most critical submissions that should be received with offers is an acknowledgment of any amendments to the solicitation. These are the changes to the terms of the solicitation (including to the "boilerplate," the drawings, specifications, scope of work, etc.) that in all likelihood have an impact on price or schedule. If an amendment is not acknowledged, you do not know if the offeror is really offering the same product or service that you want.

⁶¹ - The "Lobbying Disclosure Act of 1995" (Pub. L. 104-65) made some amendments to 31U.S.C. § 1352, which simplified the information that needed to be disclosed on this Form. Those changes are detailed at 61 *Fed. Reg.* 1412 (January 19, 1996) and will be eventually incorporated into a new Standard Form. Three items of the SF-LLL are impacted: Item 10a is amended by revising "Name and Address of Lobbying Entity" to read "Name and Address of Lobbying Registrant"; in Item 10, the statement "(attach Continuation Sheet(s) SF-LLL-A, if necessary)" is removed; and Items 11 through 15 are removed.

⁶² - See discussion at Section 4.3.2.5, "Amendment of Solicitations."

Best Practices

There are two ways most agencies allow offerors to acknowledge receipt of amendments. As we discussed in the section on the Solicitation,⁶³ many agencies include on the **solicitation form** itself, space for solicitation amendments to be acknowledged.

A second way is for the offeror to actually sign and date the amendment cover sheet and return it either at the time of receipt or include it with the offer.

Seldom is it required by the agency, but it is not unusual for an offeror to fill in the space on the solicitation form and return the amendment too. No problem from your standpoint -- just "overkill" by a concerned offeror. If you see this situation frequently, you may want to check the instructions you have provided to offerors and determine if there is some ambiguity about your acknowledgment requirements.

If you receive a bid or proposal and one or more of the issued amendments are not acknowledged, what do you do?

Many times you are initially only looking at the low bidder's bid -- look at the other bidders and see if they acknowledged the amendment. If not, there may be a mailroom or timeliness problem.

Are the changes to the solicitation made by the amendment material?

If the amendment is material, accumulate the documents and seek the advice of your legal counsel. Particularly in an IFB procurement, you may have a low bid that is non-responsive and cannot be considered for award. Depending upon how your agency conducts RFPs, the failure to acknowledge an amendment is not usually "fatal" and you can ask for an acknowledgment during negotiations or discussions.

You may wish to include in your procedures or solicitations a provision for your determination regarding the responsiveness of offers which do not acknowledge material addenda. Such a provision will reinforce your discretion.

⁶³ - See discussion at Section 4.3.2.3, "Solicitation."

4.3.3.3.2 Bid Guarantee

REQUIREMENT

In discussing bonding requirements, § 11 of FTA Circular 4220.1E provides:

For those construction or facility improvement contracts or subcontracts exceeding \$100,000, FTA may accept the bonding policy and requirements of the grantee, provided FTA determined that the policy and requirements adequately protect the Federal interest. FTA has determined that grantee policies and requirements that meet the following minimum criteria adequately protect the Federal interest:

- a. A bid guarantee from each bidder equivalent to five (5) percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of its bid, execute such contractual documents as may be required within the time specified;

§ 15.m of the Master Agreement states that:

- (m) Bonding - The Recipient agrees to comply with the following bonding requirements.
 - (1) Construction Activities – The recipient agrees to provide bid guarantee, contract performance, and payment bonding to the extent deemed adequate by FTA and applicable Federal regulations, and comply with any other bonding requirements FTA may issue.
 - (2) Other Activities – The Recipient agrees to comply with any other bonding requirements or restrictions FTA may impose.⁶⁴

State laws are sometimes specific in requiring or prohibiting security and guarantees in public procurements. Performance bonds are often required, and the requirement may also affect bid guaranties.

DISCUSSION

The primary function of obtaining a bid guarantee is to financially protect the owner from loss should the successful offeror fail to execute further contractual instruments and furnish performance bonds or insurance certificates as required. As required by the FTA,

⁶⁴ - The requirements of § 15.m of the Master Agreement mirror those of § 11 of FTA Circular 4220.1E and refer the grantee to the provisions of 49 CFR § 18.36(h).

this financial protection on construction contracts is 5% of the amount of the offer. Bid guaranties are usually used only where there is a requirement for performance and/or payment bonds are required prior to the commencement of performance.

We will discuss in other sections of the Manual bonding requirements in particular types of procurements, such as for construction,⁶⁵ equipment and supplies,⁶⁶ and rolling stock.⁶⁷ In this section, we will discuss the submission requirements for the various types of bid guarantee, such as bid bonds, certified checks, and other allowable negotiable instruments.

As with many other aspects of the procurement process, the use of bid security and the types of security may be addressed in your state laws. In these cases, you will be obligated to follow those laws as long as they meet the minimum requirements of the federal regulations set forth above.

Best Practices

Solicitation - If a bid guarantee is to be required, a solicitation clause is included that details:

- the requirement;
- the amount of the guarantee (typically 5 percent of offer price) and how it should be calculated;
- acceptable forms of guarantee (usually, cashier's check, letter of credit, or bond from a licensed agency); and
- that the guarantee must be submitted with the offer.

Nonresponsiveness - You can include in your policy regarding bid guaranties the actions to be taken if one is not furnished in accordance with the solicitation requirement.

- Normally in a *bidding* environment, if the proper guarantee is not furnished with the bid, the bid is non-responsive. If you allowed the bidder to submit the missing guarantee or correct a defective guarantee after the bids were "exposed", you would be allowing "two bites from the apple." Once the bids are known, the bidder could decide to submit (or not) the bid guarantee based on how much money is left on the table!

⁶⁵ - See Section 6.1, "Construction."

⁶⁶ - See Section 6.2, "Equipment and Supplies."

⁶⁷ - See Section 6.3 "Rolling Stock."

- In a *competitive proposal* process, if a guarantee was required and was not submitted, your solicitation document would determine whether it could be asked for during negotiations. But what do you do if you could award a contract without negotiations, (a right you will frequently reserve to yourself)? If you have to ask one offeror for its bid guarantee, is that considered discussions or negotiations? If so, that would necessitate opening discussions with all offerors in the competitive range.⁶⁸ For these reasons, and because proposers have other means of effectively withdrawing from competitive proposal processes, proposal guarantee is less frequently used than bid guarantee (even if a performance bond is ultimately required).

What if the bid guarantee is not signed, but the bid is? What if you only received one offer and the guarantee was not included with that offer? What if the guarantee is received late? What if the amount of the guarantee is insufficient? What if the guarantee is not dated or has an incorrect date? These are all questions that could arise and can be considered in your policy formulation.⁶⁹ Your policy would provide, e.g., that deficiencies affecting offer price would be material and would establish nonresponsiveness.

Custody of Guarantee - What do I do with the bid guarantee? It is recommended that if the guarantee is a bond or letter of credit, it be retained with the procurement file. If it is other than a bid bond, it is recommended that it be placed in a secure area (safe or locked file cabinet) with a notation in the procurement file its location.

Unused Guarantee - Guaranties have a financial impact on proposers as long as they are in effect. Therefore, you will want to return it to the unsuccessful offerors as soon as it is prudent to do so (e.g., you have awarded the contract or the offeror is too far down the bid list to reasonably expect an award). You may establish a rule that all offerors beyond a certain rank (e.g., the fourth lowest and all higher bids, all proposers outside the competitive range) will immediately have their guarantee returned.

Return unused guarantees to contractors after the contingencies have been met -- all contractual requirements have been met and the required performance and payment bonds and insurance certificates are in place as protection for the owner in the event of default or non-performance of the contractor.

Collection of Bond - Although you will seldom be involved in collecting funds from a bonding agency under a bid bond, collection is like the capture of the king in chess. It dictates many of the moves you will want to make to use a bid bond effectively without imposing unnecessary

⁶⁸ - See discussion in Section 4.5.4, "Discussions and Clarifications."

⁶⁹ - As an example of how these and other situations have been addressed in the federal environment, see FAR § 28.101-4.

burden on your offerors. The conditions which discharge the bond should be specified in your solicitation. Generally, the principal condition that discharges the bond or guarantee is the furnishing of a performance bond. Often the terms of the bid guarantee also guarantee that the offeror will provide executed contract documents, insurance certificates, payment bonds, or evidence of DBE compliance.

Once the performance bond is in place, it guarantees performance of all other contractor obligations. The most likely reasons a performance bond would not be furnished (which are the conditions you might look for in deciding whether to require bid guarantee) are: a financial condition so weak that bonding companies will not participate, such a large amount of bonds already issued that the bond cannot be obtained, second thoughts about the contract based on the information revealed up to the point in time of bonding, or a frivolous bid.

If the performance bond is not provided, you can specify the right under your bid guarantee provision to immediately accept the next ranked offer and to collect *from the defaulting offeror* the price and value difference between the offers. (Estimating this difference is one way to set the amount of the bid guarantee.) If the guarantee is a bond or equivalent letter of credit, you may need to obtain a judgment against the offeror before you can actually collect from the bonding company or bank. As indicated above, it is critical to most suppliers who provide bid guarantee that they retain the confidence of bonding companies. The bonding company's concern may assist in collection from a defaulting offeror.

4.4 SEALED BIDS (INVITATION FOR BIDS)

4.4.0 Overview

REQUIREMENT
<p>The FTA does not require use of the sealed bid (invitation for bids) method of procurement for any particular procurement. This method is simply one of many that may be used, as appropriate. If, however, the grantee decides this method of procurement is appropriate, § 9.c. of FTA Circular 4220.1E sets forth some definitions, parameters for use, and some specific requirements to be followed:</p> <p>c. Procurement by Sealed Bids/Invitation for Bid (IFB). Bids are publicly solicited and a firm-fixed-price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming with all the material terms and conditions of the invitation for bids, is the lowest in price.</p> <p>(1) In order for sealed bidding to be feasible, the following conditions should be present:</p> <p>(a) A complete, adequate, and realistic specification or purchase description is available;</p>

(b) Two or more responsible bidders are willing and able to compete effectively for the business;

(c) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price; and

(d) No discussion with bidders is needed.

(2) If this procurement method is used, the following requirements apply:

(a) The invitation for bids will be publicly advertised and bids shall be solicited from an adequate number of known suppliers, providing them sufficient time to prepare bids prior to the date set for opening the bids;

(b) The invitation for bids, which will include any specifications and pertinent attachments, shall define the items or services sought in order for the bidder to properly respond;

(c) All bids will be publicly opened at the time and place described in the invitation for bids;

(d) A firm fixed-price contract award will be made in writing to the lowest responsive and responsible bidder. When specified in bidding documents, factors such as discounts, transportation costs, and life cycle costs shall be considered in determining which bid is lowest;

Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of; and

(e) Any or all bids may be rejected if there is a sound documented reason.

(3) The sealed bid method is the preferred method for procuring construction if the conditions in paragraph c(1) above apply.

State law typically places additional and more specific requirements on the sealed bidding process.

DISCUSSION

Having said there is no FTA requirement that grantees use the sealed bidding method of procurement, it should be recognized that, as a practical matter, many more grantee procurements are accomplished with this method as opposed to the competitive proposal/request for proposal method which will be discussed in more detail below. There is a mixture of history and tradition behind the use of sealed bidding in the public sector

which is frequently embodied in legislative requirements at both the federal and state levels. Although federal legislative requirements mandating the use of this method have been relaxed in recent years, many states still require its use for many commodities or services being procured and it is still the "preferred" method for the acquisition of construction services in the public sector, even by the FTA. Sealed bidding is perceived to be a faster method of procurement; who gets the contract can be determined fairly objectively; and the fixed price contract which results is easy to understand and budget, as well as manage after award.

Purpose

As with so many other aspects of public procurement, we must begin with a recommendation that you check your state or local law or ordinance to determine if a legislative body has decided for you what flexibility, if any, you have to use a procurement method other than the IFB method. If you are limited on what methods you can use under what circumstances, you will be obligated to comply with those laws, ordinances or regulations. We will address this method in this section as though there were no limiting constraints on your ability to use this method. As a practical matter, the constraints you are likely to be faced with would be limitations on your ability to use the competitive proposal method rather than the sealed bidding method.

Because of the way this Manual has been drafted, it is important to read Section 4.3 in conjunction with this Section because many of the features or elements of both the IFB and RFP methods of procurement are, if not the same, very similar. Rather than duplicate the discussion of those features in our discussions of both methods, we suggest you read that section first and then this section on the sealed bidding method.

Best Practices

When do I use the sealed bid/IFB method of procurement?

- In deciding whether or not to use the sealed bidding method of procurement, the conditions detailed in § 9.c.(1) of FTA Circular 4220.1E are excellent and very self-explanatory. Go down the list, do all of the conditions exist? If you need more information about a particular condition, this Manual is designed to provide you with that additional detail. For information about specifications, refer to Chapter 3, "Specifications." For more information about "responsibility", refer to Section 5.1, "Responsibility of Contractor." For questions about what a firm fixed-price contract is, refer to Section 2.4.3.1, "Fixed Price."

What steps are involved in the sealed bidding method of procurement? Most of these steps have been addressed in Section 4.3, "Competitive Procurement Methods," but the following is an overview of those necessary steps:

- Preparation of the Invitation
 - The invitation must describe your requirements as completely, clearly, accurately and unambiguously as possible. Stated another way, the invitation should define the items or services sought in order for the bidders to properly respond. In addition to the danger of inadequate goods or services, the claims arising from errors make this a daunting task, but not an impossible one.⁷⁰
 - Requirements that restrict or act as restraints on full and open competition should be avoided.⁷¹
 - The invitation typically includes all documents (whether actually attached or incorporated by reference) furnished to all prospective bidders for the purpose of bidding.
- Publicizing the Invitation
 - The invitation must be publicly advertised and distributed to prospective bidders.⁷²
 - The amount of time after publication and distribution of the invitation to prepare and submit their bids and prior to the time and date set for opening of bids is important.
- Submission of bids
 - Sealed bids are submitted to you by bidders by the time and place stated in the invitation.
 - Bids are publicly opened at the time and place described in the invitation.
- Evaluation of bids
 - FTA requires that sealed bidding be used only if no discussion with bidders "is needed"; bids are, as a rule, evaluated without any discussions with bidders.⁷³

⁷⁰ - See Chapter 3, "Specification" for guidance on specification development.

⁷¹ - See Section 2.4.2.1, "Full and Open Competition Principle," for a discussion of full and open competition and the effect of restraints on competition.

⁷² - See discussion of advertisement and publicizing invitations in Section 4.3.2.1, "Advertising and Publicizing Solicitation."

⁷³ - One instance requiring discussion is the evaluation of apparent errors; see Section 4.4.5, "Bid Mistakes."

- Contract Award
 - A fixed price contract will be awarded to the responsible bidder whose bid, conforming to the terms and conditions of the invitation,⁷⁴ is the lowest in price.
 - If stated in the invitation, price-related factors may be considered in determining the lowest price -- e.g., discounts,⁷⁵ transportation costs, life cycle costs. A provision in the IFB that explains how the calculation of bids will be made will avoid confusion at the time of bid opening. The explanation can include options, escalators, currency issues, unit prices, etc. To preserve the right to exercise options with Federal funds, FTA requires that the option prices be evaluated in the selection process. You can also address how the rare instance of tie bids will be treated, e.g., with the traditional coin toss.

4.4.1 Solicitation

DISCUSSION

In addition to the material in Section 4.3.2.3, (the common elements of the solicitation process for both the IFB and RFP), the rigidity and precision of the sealed bid method require that your solicitation anticipate the procedural issues that may arise. Although these items may be appropriate to an RFP as well, an IFB should be particularly clear regarding requested amendments and approval of items equal to those specified, bid opening time and place, the price schedule, the offer form, and the clarity of the technical specifications.

Best Practices

In this section, we will provide you with a nominal checklist of things for you to consider in the development of your solicitation -- some of the items noted here may not be applicable to every procurement.

- Identification of Solicitation
- Solicitation number
 - Date of solicitation issuance

⁷⁴ - See discussion in Section 4.4.3, "Responsive Bidder."

⁷⁵ - As stated in the Requirements discussion, discounts, such as prompt payment discounts, should only be used in the calculation of low bid if the history within your agency indicates discounts offered are usually taken advantage of.

Identification of agency

- Name and address (street and mailing if different) of your agency
- Name and telephone number (voice and facsimile) of contact within your agency

Instructions to bidders

- Date, time, and place of bid opening
- Instructions channeling communication regarding the procurement – typically with the designated procurement official only
- Instructions relating to rules regarding late submission of bids
- Instructions relating to how amendments of the solicitation should be acknowledged
- Instructions on what documents should be returned with bid

Bid guarantee

Price schedule

Representations and certifications

Bid samples

Descriptive literature

- Notification of bid acceptance period is a concept that may also be addressed in the competitive proposal method, but is

more prevalent in the IFB process. You can tell bidders in the solicitation that they must allow a minimum period in which your agency can accept their bid after its submission. Further, if they want to include a lesser period than your minimum, the bid will be rejected as nonresponsive. What is your normal processing time for bids -- 30, 60, 90, 120 days? Be realistic but also understand that the longer the period you allow to accept, the greater will be the contingency the bidder put in its bid to reflect price fluctuations in the marketplace. Also take into consideration that you can (and sometimes will) request offerors to voluntarily extend their offers for an additional period if you encounter a delay.

Boilerplate attachments or exhibits

- Instructions and Conditions of Solicitation
- General Provisions
- Special Provisions
- Bonds (Bid, Performance, Payment)

Specifications, Scope of Work, Drawings

4.4.2 **Bid Opening**

REQUIREMENT

"All bids will be publicly opened at the time and place prescribed in the invitation for bids;" ⁷⁶

DISCUSSION

The day that you have all been waiting for has arrived. Bids for your project are due in Room 407 at 2 P.M. Will we get any bids? Where will the price of the bids be in relation to the estimate? What do I do if all of the bids exceed my budget? What if there's only one bid? What if a bidder delivers its bid at 2:02 P.M.? What do I actually do at 2 P.M.? Do I read the bids out loud? What if the bidders want to look at the bids we received?

These are some of the many concerns that you probably have every day you receive bids. Although many of these issues are beyond the scope of this manual since they are defined by your agency and its own peculiar personality, a few of these issues are very important to the sealed bidding procurement process. The time and date set for the receipt of bids and the public announcement of those bids are very critical to the success and integrity of a public procurement process.

Best Practices

As with the other sealed bidding issues, the procedures surrounding the receipt and opening of bids may be dictated by your state law or procedures. As a general concept of public procurement, the opening of bids is the point in time when completion of the procurement (acquisition) process begins and the contract administration process starts. It also initiates the rules relating to "responsiveness" and "responsibility" which are discussed in Sections 4.4.3 and 5.1 respectively.

The process of receiving bids. As you approach the date and time set in your solicitation for receipt of bids, you will begin to receive bids. A simple step to eliminate many questions that could arise later is to keep the bids unopened in a secured location, preferably a locked bid box, file cabinet, or safe.

- The identity and number of bids received need not be disclosed within your agency prior to the time and date set for receipt of bids except to those personnel with a real "need to know."

⁷⁶ - FTA Circular 4220.1E § 9.c.(2)(c).

- As discussed in Section 2.3.2, "Independent Grantee Cost Estimate," when you receive the "independent estimate" it can also be secured, logically in this same location. It is also a good practice to have on your "procurement checklist" to be sure you have received this estimate, particularly if this is a federally-funded procurement.
- On the day of receipt of bids (maybe an hour ahead of time), you may want to establish a place in the room where the bids will be read where bids can be deposited and time-stamped in.

Opening, reading, and recording bids.

- Bid opening is a public event and is open to the general public.
- As the time for receipt of bids approaches on the day bids are due, if you are the bid opening official, consider checking the time with a reliable source and using that time as the official time.
- Shortly (10 minutes?) before the time for receipt of bids, you may also want to call your office, the mailroom, the security desk, and anywhere else you can think of where a bid might be and get it logged in. "Do you have an envelope indicating it is a bid for IFB No. 123-4456? If so, please bring it to Room 407 immediately."
- Bidders are apt to be coming into the room at the last minute to submit bids. Don't be surprised when a breathless bidder comes running into the bid room frantically waving a bid and wanting you to consider it.
- At the designated time, you may announce to those in attendance that the time set for receipt of bids has arrived and that no further bids will be received.
- At that time, personally and publicly open the bids, read the bids aloud (if practical) to those persons present, and have the bids recorded. Some procedures also include opening, reading aloud, and recording the independent estimate. Other agencies believe this information could help a disappointed bidder to interfere with the process, or could be used by a single bidder to the agency's disadvantage.
- The bids are usually recorded on a document called an Abstract of Bids and this document is available for public inspection after completion.
 - Unless it unduly interferes with the conduct of your business, you may allow time after the bids are read for interested members of the public to review the bids submitted under the immediate supervision of an agency official and under conditions that preclude the possibility of a destruction, substitution, addition, deletion, or alteration of the bid.

- If irregularities or discrepancies are discovered during this review process, or if you noticed something irregular during the public reading, it is best to simply note them and not discuss these in public. These matters are best discussed only with appropriate agency personnel, including the appropriate procurement, engineering, maintenance, and legal staff members.⁷⁷

Late bids - Many instructions for bidders include a clause that addresses the late submission, modification, and withdrawal of bids. The clause may be required by state law or patterned after a Federal provision.⁷⁸ The clause specifies any circumstances (e.g. documented failure by specific mail or delivery services) that are exceptions to the general rule - - bids received at the place designated in the IFB after the exact time set for bid opening are late and will not be considered under any circumstances.⁷⁹ Whether or not the late bid would have been low in price is of no consequence. It must be rejected, the argument goes, because maintaining the integrity of the sealed bid procurement process is more important than the possible advantage to be gained by considering a late bid in a particular procurement.⁸⁰

- Although the burden of getting the bids to the bid opening location on time is on the bidder, it is easier to take extra precautions to ensure all bids are at the proper location at the proper time, than to explain later the integrity of the process. As we alluded to earlier, you might want to consider the following as "preventive" measures designed to reduce the possibility of this happening to you:
 - Consider placing clear instructions in the mailroom and at the reception area as to what is to happen with bids and bidders, particularly on the day bids are due.
 - Consider calling your mailroom, your office, and the location where bids are "normally" received and secured shortly before the time for receipt of bids and inquire if any bids were received in the last mail delivery or delivered to the other location(s).

⁷⁷ - You should understand that if an unsuccessful bidder discovers an error, they will likely file a protest (or formal query) almost immediately. It is very important, therefore, that you proceed very carefully. Some procedures, to discourage false hopes and resulting arguments, prohibit the reading of bids that are clearly defective (e.g., missing bid guaranty).

⁷⁸ - See the extensive discussion of this in Section 4.3.3.1, "Receipt of Offers," where we addressed the considerations that are typically weighed when policies are adopted concerning the receipt of offers. The FAR provision typically used as a "model" is FAR § 52.214-7.

⁷⁹ - See, e.g., *J. C. Kimberly Co., Comp. Gen. B-255018.2*, 94-1 CPD 182 79 (A bid that was hand carried to the bid opening room seconds after the bid opening officer declared that time had arrived was properly rejected as late.) One of the exceptions addressed in FAR §52.214-7 and elaborated upon in FAR § 14.304-1(a)(2) addresses the situation when late receipt of the bid is due solely to mishandling by the agency after receipt at the agency location.

⁸⁰ - *Id. See also, Swinerton & Walberg Co., Comp. Gen. B-242077.3*, 91-1 CPD 318.

- Include labels or envelopes clearly marked with Bid # and date and time due in the solicitation package for use by bidders.

4.4.3 Single Bid

REQUIREMENT

Within the discussion of sole source contracts, the FTA Circular 4220.1E, Paragraph 9.h – *Procurement By Noncompetitive Proposals (Sole Source)* also deals with the situation when a number of offerors are solicited but only one response is received:

Sole Source procurements are accomplished through solicitation of a proposal from only one source, or after solicitation of a number of sources, competition is determined inadequate. . . .⁸¹

FTA Circular 4220.1E, Paragraph 10 requires grantees to perform a cost or price analysis in connection with every procurement action:

10.a. Cost Analysis. A cost analysis will be necessary when adequate price competition is lacking and for sole source procurements . . . unless price reasonableness can be established on the basis of a catalog or market price of a commercial product sold in substantial quantities to the general public or on the basis of prices set by law or regulation.

10.b. Price Analysis. A price analysis may be used in all other instances to determine the reasonableness of the proposed contract price.

DEFINITIONS

Single Bid - Only one bid has been received at the time and date set for bid opening.

Single Responsive Bid - Only one responsive bid received at the time and date set for bid opening. This may result from having only one bidder or from all other bidder(s) being nonresponsive.

No Responsive Bids - All bids received at the time and date set for bid opening are nonresponsive.

⁸¹ - This paragraph was changed from prior versions of the circular to eliminate the phrase “or acceptance” of a single proposal when discussing what constitutes a sole source procurement. FTA believes that, upon receiving a single bid (or proposal) in response to a solicitation, the grantee should determine if competition was adequate. This determination may include a review of the specifications to determine if they were unduly restrictive or contacting sources that chose not to submit a bid or solicitation. It is only if the grantee determines that competition was inadequate that the procurement should proceed as a sole source procurement. The mere fact that only one bid or proposal was received does not automatically mean competition was inadequate since many unrelated factors could cause potential sources not to submit a bid or proposal.

DISCUSSION

State or Local Law - As with many other areas of procurement, procedures for handling a single bid in response to an invitation for bid may be addressed specifically by your state or local law. In the absence of a prescribed procedure, this section presents ways to analyze and move forward with your procurement.

Adequacy of Competition - When only one bid is received in response to a solicitation that was issued to multiple sources, you will first have to determine if there was adequate competition. The FTA interpretive comment in the annotated Circular 4220.1E, paragraph 10, makes clear the fact, that when only one bid is received, this does not, in itself, mean that competition was inadequate. In order to make this determination, it may be necessary to talk to those firms solicited to find out why they did not submit bids. If the reason is a restrictive specification or a delivery requirement that only one bidder could meet, you have a situation of inadequate competition. If this is the case then the procurement is a sole source and you must process it as such with internal agency approvals, or cancel the solicitation, change the requirements to allow for more bids, and re-solicit bids. On the other hand, if the reasons given by the non-responders are unrelated to the specification and/or solicitation terms, then you may presume competition was adequate and proceed with the award as a competitive one. You should document your file so that there is a clear audit trail for reviewers to understand how you reached your determination.

Cost or Price Analysis - If the competition is deemed to be adequate, then a *price analysis* must be performed to determine the reasonableness of the bid price.⁸² If, on the basis of a price analysis, you are able to document your determination that the price is fair and reasonable, and if the bid is responsive and the bidder responsible, you may proceed with award. If, however, you cannot determine the reasonableness of the bid on the basis of a price analysis, then you will have to request a detailed breakdown of costs and profit from the bidder and perform a *cost analysis*.

If competition is deemed to be inadequate, and you decide to process the award as a sole source, then you will have to perform a *cost analysis* (i.e., request from the bidder a detailed breakdown of the estimated costs and profit) unless you can establish the reasonableness of the price based on the bidder's catalogue or market price (note that the item must be sold in substantial quantities to the general public), or the price is set by law or regulation. For a discussion of cost and price analysis techniques, see BPPM section 5.2 – *Cost and Price Analysis*. If the bidder refuses to furnish a cost breakdown for your analysis, then you will have to request a waiver from FTA of the Circular requirement in paragraph 10.a that a

⁸² - Section 5.2 - *Cost and Price Analysis* discusses various price analysis techniques, and they include (among others) comparison to previous purchases, comparison to a valid grantee independent cost estimate, and value analysis.

cost analysis be conducted on every sole source procurement, or cancel the procurement and re-solicit bids.⁸³

Negotiation - If you have been unsuccessful in determining through a price or cost analysis that the bid price is fair and reasonable, you may wish to enter negotiations with the offeror to attempt to establish a different price that can ultimately be determined to be reasonable. Some authorities view this as canceling the sealed bidding method of procurement and converting, through documentation, the procurement either to a competitive proposal (a negotiated procurement) or a sole source procurement. This is another area that may be controlled or regulated by state law. For instance, your state may require that construction services only be awarded by accepting a sealed bid, with no exceptions. (If this is the case, you really have no choice but to cancel the solicitation and, if your requirement continues, to re-advertise the procurement.) If, however, your state allows flexibility and you are able to justify conversion of the procurement to a negotiated process, this may allow you to negotiate a contract with a price that is fair and reasonable so that award can be made.

4.4.4 **Responsive Bidder**

REQUIREMENT

The concept of "responsiveness" is discussed in § 9 of FTA Circular 4220.1E as an integral element of the sealed bidding method of procurement:

c. Procurement by Sealed Bids/Invitation for Bid (IFB). Bids are publicly solicited and a firm-fixed-price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming with all the material terms and conditions of the invitation for bids, is the lowest in price.

Subparagraph 9.c.(2) of FTA Circular 4220.1E, in discussing the requirements to be used if the sealed bid method of procurement, lists the following:

(d) A firm fixed-price contract award will be made in writing to the lowest responsive and responsible bidder. When specified in bidding documents, factors such as discounts, transportation costs, and life cycle costs shall be considered in determining which bid is lowest;

⁸³ - You may have, for example, data from previous purchases, an independent cost estimate, etc. with which to compare the bid price, but not have a "catalogue or market price of a product sole in substantial quantities to the general public" as required by paragraph 10.a of the Circular.

DEFINITION

Responsive - If an offer conforms in all material aspects to the requirements of the solicitation at the scheduled time of submission and does not require further discussions with the offeror, the offer is responsive.

DISCUSSION

Although it may be stated differently in the rules or statutes governing your procurement processes, the concept of awarding a contract to the lowest responsive and responsible bidder is a common precept in public contracting at the Federal, state, and local levels throughout the country. It is helpful to maintain the distinction among these concepts in reviewing bids, and to consider them in the stated sequence. First identify the lowest bid, then find the lowest responsive bid, then find the lowest responsive and responsible bidder.

Evaluation Sequence

The following is a sequence of evaluation that is useful for explanation and may also be useful in practice; however, the concepts and correct determinations are far more important to successful procurement than is the sequence. Examination of bids logically begins with the lowest bidder. Once the lowest bidder is determined, look to see if the bidder is responsive. "Responsiveness" is a concept critical to the sealed bidding process. In public contracting, in order for a bid to be acceptable, it must conform in all material respects to the requirements stated in the invitation. Responsiveness is determined from the bid documents themselves and, with very few exceptions, is determined with no discussions or further input from the bidder.

The precise definition of "responsiveness" may vary from jurisdiction to jurisdiction and the definition applicable to your organization may be stated in your procurement regulations or statute. If the initial low bidder is not responsive (the bid does not conform to the material requirements of the invitation), you need go no further with that bidder. Instead you may go back and look at the second lowest bid and determine if it is responsive.

Once you have determined that you have a low priced bidder who is responsive, you then begin the more subjective process of determining the bidder's responsibility.

"Responsibility" is also a term with specific connotations in procurement. What is involved in determining a bidder's responsibility may vary from jurisdiction to jurisdiction.

FTA defines "responsibility" to be a contractor who possesses the ability to perform successfully under the terms and conditions of the proposed procurement. In determining whether a contractor possesses this ability, you may consider such matters as contractor integrity, compliance with public policy (e.g., EEO record, attainment of DBE goal, not debarred or suspended, etc.), record of past performance, and financial and technical resources. Unlike responsiveness, which normally can be finally determined based on the bids, a determination of

responsibility may be affected by new information up to the time of contract award. Thus, in ascertaining whether or not a bidder is responsible, discussions may be held with the bidder to discuss these factors so that, by the time of award, a positive determination can be made. If you do not determine that the bidder is responsible, look through the list of bidders again to determine a low, responsive, responsible bidder to whom a contract can be awarded.

Strict Responsiveness - To understand the concept of "responsiveness" and its practical rigidity in the public contracting environment, recall that the IFB issued by the agency is designed so that all bidders who respond can make comparable offers under the same terms and conditions. When a bidder submits its bid to the entity in response to the IFB, the entity must be able to accept that bid as submitted, thereby creating a binding contract.⁸⁴ The following discussion of responsiveness will cover general principles and parameters of Federal procurement precedents. You may have to ensure compliance with your state's laws and precedents and your agency's procedures. The best practice is to establish a clear, unambiguous agency policy on which bidders can rely, so that, in preparing their bids, they can be confident that no material deviations will be allowed to any bidder in complying with the solicitation and its specifications.

Purpose

Requiring strict responsiveness, i.e. compliance in all material respects with the IFB "enables bidders to stand on an equal footing and maintains the integrity of the sealed bidding system."⁸⁵ Examples of bids typically considered nonresponsive include:

- The bid fails to conform to material requirements;
- The bid does not conform to applicable specifications (unless the invitation allowed alternates);
- The bid fails to conform to delivery schedule or permissible alternates;
- The bid imposes conditions that would modify the requirements of the invitation or limit the bidder's liability to the entity;
- There is a condition of the bid which affects the substance of the bid (i.e., affects price, quantity, quality, or delivery of the items offered) or works an injustice on other bidders;

⁸⁴ - "Bid responsiveness involves the question of whether the bid as submitted, represents an unequivocal offer to do exactly what the government has specified, so that acceptance of the bid will bind the contractor to meet the government's requirements in all material aspects." *Hankins Lumber Co.*, Comp. Gen. B-248101, 92-2 CPD ;50.

⁸⁵ - FAR § 14.301(a).

The bid contains prices for line items that are materially unbalanced, i.e., figures in the bid conflict with the total bid price;

- date;
- The bidder fails to furnish a bid guarantee in accordance with the requirements of the invitation;⁸⁶ or
- Failure to submit Buy America Certification.

Responsiveness is a fairly objective concept and is ascertainable at the time of bid opening.⁸⁷ Further, the bidder's intent to be bound by the IFBs requirements can normally be determined from the bid itself.⁸⁸ A "second bite at the apple" is a phrase commonly heard in discussions pertaining to the precept that responsiveness be determined at the bid opening solely from the bid documents and without explanation. You will not want an apparently low bidder to re-evaluate its bid after the public opening and effectively withdraw the bid by refusing to respond or responding in a subversive way; the bidder should not have a second bite at the apple. This means that the bid package must be examined thoroughly. Some of the questions you may ask are:

- Does the cover letter take exception to any material terms and conditions?
- Is the bid ambiguous? Is it susceptible to two or more reasonable interpretations?
- Were all material amendments to the solicitation acknowledged?
- Was the bid signed?
- Were all material representations and certifications completed?
- Is the Buy America certificate required by 49 CFR § 661.6 or § 661.12 signed?⁸⁹

⁸⁶ - FAR § 14.404-2.

⁸⁷ - *Northwestern Motor Co.*, Comp. Gen. B-244334, 91-2 CPD 249.

⁸⁸ - *Record Press, Inc.*, Comp. Gen. B-229570.2, 88-1 CPD 161.

⁸⁹ - 49 CFR § 661.13(b) provides: The grantee shall include in its bid specification for procurement within the scope of these regulations an appropriate notice of the Buy America provision. Such specifications shall require, as a condition of responsiveness, that the bidder or offeror submit with the bid a completed Buy America certificate in accordance with § 661.6 or § 661.12 of this part, as appropriate. (emphasis added)

- Were required descriptive literature and bid samples included with the bid?
- If required, was a bid bond or bid guarantee submitted?
- Was the bid defective?
- Was the price offered firm and definite?
- Were the material items or information required by the invitation submitted with the bid?
- Was the bid received at the place designated in the invitation at the exact time specified or was it late?

If something is questionable, is the issue one of responsibility or responsiveness?⁹⁰ Your customers may want to gain greater confidence in the bids by specifying, purportedly as a condition of responsiveness, that bidders have specific capacities. You may also find a defect (e.g. in certifications or requested information) that relates primarily to the ability of the bidder to perform. Precedent for direct Federal procurement is that merely by the language in an IFB, a contracting agency cannot change a matter of responsibility (ability to perform) into one of responsiveness (unequivocal offer to perform).⁹¹ The best practice is to maintain this distinction.

Materiality - Whole courses are taught on sealed bidding and the issue of responsiveness. The list of questions and issues raised in this discussion should not be considered as all encompassing. Instead, they are intended to raise sensitivity to some of the issues that impact responsiveness. It should be apparent from this discussion that the single most important concept impacting responsiveness is "materiality" -- does the inclusion or omission of the fact, item, or requirement affect price, quantity, quality, or delivery of the items offered? If so, the bid is probably nonresponsive. If not, the bid is probably responsive. There are, however, many facts and situations that do not clearly fall within these parameters and become issues that may require analysis and input from your legal advisor. If in doubt, ask!

DBE - Although DBE program compliance is more often a responsibility requirement, some processes make DBE compliance a condition of responsiveness. This issue is discussed further

⁹⁰ - The Comptroller General, in *Staples-Hutchinson & Associates, Inc.*, Comp. Gen. B-245007, 91-2 CPD 491 stated: Whereas bid responsiveness concerns whether the bid itself as of the time of bid opening unequivocally offers to perform in accordance with all material terms and conditions of the solicitation, responsibility refers to a bidder's ability to perform the contract requirements and is determined not at bid opening but at any time prior to award based on information received by the agency up to that time.

⁹¹ - *EDT Construction, Inc., et al.*, Comp. Gen. B-240343, 91-1 CPD 374.

in the discussion of DBE submissions and award in Chapter 7, "Disadvantaged Business Enterprise."

4.4.5 Bid Mistakes

DISCUSSION

It may not be as certain as death and taxes, but inevitably and unfortunately, a mistake may be discovered in your low bid. A mistake doesn't necessarily mean you cannot award a contract to the low bidder, but that could be the result. How you typically treat the mistake will depend upon what the mistake is and when it is discovered. State law in some states explicitly addresses bid mistakes.

Best Practices

Mistakes in bids are usually discovered after bids are opened⁹² and before the contract is awarded. The mistake, or suspicion of a mistake, may be discovered by the procurement official in its review of the bids. Some procedures call for the identification of clear defects (e.g., absence of a bid bond) at the bid opening and the rejection without reading of the bid. This minimizes the discussion and likelihood of protest. The mistake may be discovered by an unsuccessful bidder (not just the low bidder) when it is reviewing the bids after bid opening. Or it may be discovered by the apparent low bidder upon returning to its office after bid opening -- sometimes driven to an examination of its bid after it has learned how much money was "left on the table!" Regardless of how it is discovered, it is a problem in the sealed bidding method of procurement because of the strict rules of responsiveness, because bids have been exposed, and because the integrity of the procurement process is at stake.

The four generally accepted categories of bid mistakes are:

1. Minor informalities or irregularities in bids prior to award of the contract;
2. Obvious or apparent clerical mistakes discovered prior to award;
3. Mistakes other than minor informalities or irregularities in bids, or obvious or apparent clerical mistakes that are discovered prior to award; or

⁹² - Although unusual, it is possible that before the time and date set for receipt of bids, a bidder may discover a mistake in a bid it has already submitted to you. If you have included a clause in the solicitation (or adopted a policy) as suggested in our earlier discussion on "Receipt of Offers" (*see* Section 4.3.3.1) and the problems with late submissions, modifications and withdrawals of offers, they should be followed. Essentially, the bidder is advised that modification of its bid would be treated the same as the original bid -- must be received timely and should clearly identify the bid it is modifying.

4. Mistakes discovered after award.

If a mistake fits within one of these categories, three things can happen: the mistake can be corrected, the mistake will be recognized and the bid allowed to be withdrawn, or the mistake will not be recognized and the bid not allowed to be withdrawn.

We will discuss each of these categories of mistakes and what the consequences of each are if it is established that a mistake has been made. One final thought before that discussion: many transit properties in their procurement regulations have adopted rules relating to the treatment of these categories of mistakes and, in most cases, have patterned their rules after the rules in either the FAR⁹³ or the *Recommended Regulations for the American Bar Association's Model Procurement Code for State and Local Governments*.⁹⁴ If you have rules addressing this common problem, it makes the administration of your procurement process much easier because the rules are known, not decided on a case-by-case basis.

The following tables analyze the types of mistake and one set of actions; many variations on the illustrative rules presented here are successfully in use.

<p><u>Minor informalities or irregularities in bids prior to award of the contract.</u></p> <p>Merely a matter of form and not of substance.</p> <p>May be an immaterial defect in a bid that can be corrected or waived without being prejudicial to other bidders.</p> <p>The defect is "immaterial" when the effect on price, quantity, quality, or delivery is negligible when contrasted</p>	<p>Remedy: the contracting officer shall give the bidder an opportunity to cure the deficiency or waive it, whichever is in the best interests of the owner.</p> <p>Examples of minor informalities or irregularities include failure of the bidder to:</p> <p>Return the incorrect number of signed bids required by the IFB (1 submitted, 3 required).</p> <p>Sign the bid, but only if the unsigned bid <u>is accompanied</u> by other material indicating the bidder's intent to be bound, such as a bid guarantee or letter signed by the bidder referring to and clearly identifying the bid itself.</p> <p>Acknowledge receipt of an amendment to the IFB, but only if it is clear from the bid itself that the bidder received the</p>
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⁹³ - See FAR § 14.406.

⁹⁴ - See § R3-202.13 (Mistakes in Bid), *Recommended Regulations* approved August 2, 1980, implementing *The Model Procurement Code for State and Local Governments*, approved by the American Bar Association on February 13, 1979 (hereinafter referred to as the *Recommended Regulations*).

<p>with the total cost or scope of the requirement being procured.</p>	<p>amendment and intended to be bound by its terms ⁹⁵ or the amendment involved had no (or a negligible) effect on price, quantity, quality, or delivery.</p> <p>Furnish required information that goes to the issue of responsibility (e.g., number of employees bidder has, information concerning parent company and any affiliates, certifications concerning EEO and Affirmative Action programs, certification concerning Lobbying. ⁹⁶)</p>
<p><u>Obvious or apparent clerical mistakes discovered prior to award.</u> ⁹⁷</p> <p>Mistake must be obvious or apparent on the face of the bid.</p> <p>This is the category of mistake most frequently discovered by the contracting officer during its examination of the bid after bid opening.</p> <p>If you know, or have reason to know or suspect, that a mistake in a bid has been made, there is a real issue of whether you can, in good faith, accept that bid.</p>	<p>Examples include:</p> <p>Obvious misplacement of decimal point.</p> <p>Obvious reversal of the price f.o.b. destination and price f.o.b. origin –higher price for you picking the product up at the origin than for the bidder to deliver the product to the place designated by you.</p> <ul style="list-style-type: none"> - Obvious mistake in designation of unit. - Typographical errors. - Error in extending unit prices. - Transposition errors. - Arithmetical errors.

⁹⁵ - For instance, Amendment Number 1 to the solicitation changed the quantities for line item 4 on the Schedule from 5 to 12. The bid included a Schedule that showed the quantity for line item 4 to be 12. No other amendments were issued and the bidder did not formally acknowledge Amendment No. 1. There was no way it could have used the correct Schedule page unless it had received the Amendment -- clear from the bid that it received Amendment No. 1.

⁹⁶ - See discussion at Section 4.3.3.2, "Federally Required Submissions with Offers."

⁹⁷ - The *Recommended Regulations to the Model Procurement Code* [at § R3-202.13.4(b)] refers to this type of mistake as "mistakes where intended correct bid is evident." The mistake and the intended bid are clearly evident on the face of the bid document.

<p>The bidder may also discover this category of mistake and bring it to your attention and request that it be allowed to correct the mistake.</p>	<p>Procedure: What do you do if you have this category of mistake?</p> <p>Recommend you <u>make your legal counsel aware</u> of situation so proper legal advice can be obtained as you proceed through the mistake evaluation process. This is an area that is prime for a later protest by either the firm requesting relief from a "mistake" or from another bidder that feels it could be impacted by your decision regarding the mistake.</p> <p><u>Request verification of the bid.</u> This is necessary to assure the contracting officer that the bid as confirmed is without error, or to elicit the allegation of a mistake by the bidder.</p> <p>This process normally includes the following steps:</p> <p>Prepare a written request to the bidder that it verify its bid price.</p> <p>The request puts the bidder on notice of a mistake suspected by the contracting officer as appropriate. For instance, the bid is so much lower than the other bids or the agency independent estimate as to indicate a possibility of error. Or, highlight important or unusual characteristics of the specification. Point out the fact that there were changes in the specifications or requirements from previous purchases of a similar item. Your notice can include any information, <u>which is proper for disclosure</u>, that lead you (as the contracting officer) to believe that there is a mistake in the bid.</p> <p><u>Evaluate the verification response</u> from the bidder. If the bidder verifies its original bid, you may consider the bid as originally submitted. If, however, the bidder alleges a mistake was made, it is recommended you take the following actions.</p> <p>Advise the bidder to make a written request to withdraw or modify its bid.</p> <p>Advise the bidder that it must support its request with <u>any and all</u> evidence to support the position it is taking.</p> <p>Advise the bidder of definite time deadlines in which to provide the information requested.</p>
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	<p>Be suspicious – don't forget that everyone's bid has been exposed to the world!</p> <p>Remedy: After verification, the contracting officer may correct an apparent or obvious clerical mistake. It is recommended that you:</p> <p>Attach the verification to the original bid.</p> <p>Reflect the correction in the award document.</p> <p>Document the procurement file to indicate why you took the action you did.</p> <p>You should only allow a bid to be corrected if the bid, as submitted, was responsive -- you should not allow correction of a bid that would make a non-responsive bid a responsive bid.</p> <p>If correction of the bid would displace one or more lower bids, it is recommended that you not allow correction unless the evidence of the mistake and bid actually intended are ascertainable substantially from the invitation and bid itself as opposed to evidence brought in to you by the bidder in response to your request for verification.</p> <p>Do not allow the bid to be withdrawn.</p>
<p><u>Mistakes other than minor informalities or irregularities in bids, or obvious or apparent clerical mistakes that are discovered prior to award.</u>⁹⁸</p> <p>These mistakes are generally raised by the bidder along with a request to withdraw its bid.</p>	<p>Procedures: It is recommended that you follow the procedures outlined in the previous discussion when a bidder alleges a mistake has been made. Pay particular attention to the evidence the bidder furnishes that establishes the existence of the mistake – remember, it is not obvious from the bid itself. Be particularly sensitive to the bidder that wants out of its bid simply because it made a judgmental error in preparing its bid and, after bid opening, discovered it "left too much money on the table."</p>

⁹⁸ - The *Recommended Regulations to the Model Procurement Code* [at § R3-202.13.4(c)] refers to this type of mistake as "mistakes where intended correct bid is not evident."

<p>Examples include:</p> <p>A pricing element from a vendor was received but not included in the bid – the electrical subcontractor's quote was not included.</p> <p>The material cost for an element of work was included but the labor to install it was not included.</p>	<p>Remedy: You should allow the bidder to withdraw its bid if:</p> <p>The mistake is clearly evident on the face of the bid document but the intended correct bid is not similarly evident; or</p> <p>The bidder submits proof which clearly and convincingly demonstrates that a mistake was made.</p> <p>You may make a determination to correct the bid and not allow its withdrawal if:</p> <p>The bidder requests permission to withdraw a bid rather than correct it;⁹⁹</p> <p>The evidence is clear and convincing both as to the existence of a mistake and as to the bid actually intended; and</p> <p>The bid, both as originally submitted and as corrected, is the lowest bid received.</p>
<p><u>Mistakes discovered after award.</u>¹⁰⁰</p> <p>Although it is much rarer than other allegations of mistake, a contractor may raise the issue of mistake in bid after award of the contract is made.</p> <p>Obviously, the burden of proving a mistake was made at this time is great and must be carried by the contractor.¹⁰¹</p>	<p>Remedy: What you do with mistakes discovered and proven after award are really policy questions that you should consider when adopting your regulations. There really is no "best" practice in this area but it appears that transit properties have taken one of the two approaches outlined below:</p> <p>The "hard line" approach: do not allow correction except where the contracting officer makes a written determination that it would be unconscionable not to allow the mistake to be corrected.¹⁰²</p>

⁹⁹ - You should consider all the long run costs of forcing the bidder to perform unwillingly.

¹⁰⁰ - For an extended treatment of this topic (and also as the source for most policies of transit properties on the matter), it is recommended that you review FAR § 14.406-4 and the *Recommended Regulations* at § R3-202.13.5.

¹⁰¹ - See FAR § 14.406-4(e) for recommended procedures to follow in the event this type of mistake has been alleged or disclosed.

¹⁰² - This is the position taken in the *Recommended Regulations* at § R3-202.13.5.

	<p>The FAR approach ¹⁰³ offers more alternatives other than the "unconscionable" approach:</p> <p>The mistake may be by contract amendment if correcting the mistake would be favorable to the transit property without changing the essential requirements of the specification.</p> <p>Additionally, a determination could be made to (a) rescind the contract; (b) reform the contract to delete the items involved in the mistake or to increase the price if the contract price (as corrected) does not exceed that of the next lowest acceptable bid under the original IFB; or (c) allow no change to be made.</p> <p>It is recommended that you proceed very carefully through this process and with advice of legal counsel.</p>
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4.4.6 Bid Withdrawal

DISCUSSION

It's two days after bid opening. You're sitting at your desk basking in the great procurement you conducted and all the competitive bids you received. The phone rings, breaking the self-congratulatory mood, and you pick it up. "Hi, I'm Mr. Low Bidder and we have decided we really don't want this contract and want to withdraw our bid!" Talk about messing up your day. What do you do next?

Section 4.4.5 addresses the rules relating to the withdrawal of bids because of a mistake in bid. Those rules govern almost all of the instances in public contracting in which a bidder is allowed to withdraw its bid after bid opening in the sealed bidding process. Bidders are usually permitted to modify or withdraw their bids prior to bid opening.

Best Practices

When to allow withdrawal of bids

If you receive a written request from a bidder prior to the time and date set for receipt of bids that it wishes to withdraw a bid it has previously submitted, that request is honored under most

¹⁰³ - See FAR § 14.604-4(a) and (b).

procurement policies. If the request to withdraw is received after the time and date set for receipt of bids, the same rules apply to that request as would apply to the late receipt of a bid.

As we discussed in Sections 4.3.2.3, "Solicitation," and 4.4.1, "Solicitation" (Sealed Bids), we recommended inclusion of a clause that addresses the Late Submissions, Modifications, and Withdrawals of Bids. This clause sets forth the only contractual period during which bids can be withdrawn. Subparagraph (g) of the FAR clause, which forms the basis for many transit property clauses, provides:

(g) Bids may be withdrawn by written notice or telegram (including mailgram) received at any time before the exact time set for receipt of bids. If the solicitation authorizes facsimile bids, bids may be withdrawn via facsimile received at any time before the exact time set for receipt of bids, subject to the conditions specified in the provision entitled 'Facsimile Bids.' A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for receipt of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

If a bidder has established the existence of a mistake in its bid prior to award of the contract, it should be allowed to withdraw its bid if:

- The mistake is clearly evident on the face of the bid document but the intended correct bid is not similarly evident; or
- The bidder submits proof which clearly and convincingly demonstrates that a mistake was made.

What if the request to withdraw does not fit into those categories?

For the reasons that follow, you will probably not allow the bidder to withdraw its bid without legal counsel. This is an issue that may be impacted by an interpretation of your state law on public contracting, particularly in the absence of a clause as will be discussed next.

Of critical importance to being able to take this position is the inclusion in your solicitation document of two clauses which we have referred to in previous sections of the Manual. The first clause (which we have included a suggested provision earlier in this discussion) is the Late Submissions, Modifications, and Withdrawals of Bids clause. The second is a clause addressing the bid notification period as discussed in Section 4.4.1, "Solicitation." Just as an example, the following is the clause that accomplishes this level of protection by federal agencies:

Period of Acceptance of Bids

In compliance with the solicitation, the bidder agrees, if this bid is accepted within ____ calendar days (60 calendar days unless a different period is inserted by the bidder) from

the date specified in the solicitation for receipt of bids, to furnish any or all items upon which prices are bid at the price set opposite each item, delivered at the designated point(s), within the time specified in the Schedule. ¹⁰⁴

There is nothing magical about the particular language in this clause, but the legal context is very important. If this language is part of the solicitation that the bidder signs when submitting its bid, as part of its offer, it is telling you that you have 60 days to accept its bid. It has agreed to hold its offer open for that period of time and you can take that long to act upon that offer. Under this example, you do not, however, have 61 days to accept the bid!

"What is the rationale for this result? I thought you could always withdraw your offer prior to it being accepted." There is a lot of law on this subject, but one of the earliest articulations of this philosophy is contained in the quote from a 1909 decision of the United States Court of Claims that is still good law on this issue:

What are the rights of bidders as to the withdrawal of their bids after they have been opened and they have been informed thereof, but before they have been accepted? The agents of the Government stand upon a different footing from private individuals in the matter of advertising for the letting of contracts in behalf of the United States. They have no discretion. They must accept the lowest or the highest responsible bid, or reject all and re-advertise. Private individuals are not required thus to act. Hence, it is apparent that the government agents should be allowed a reasonable time after the opening of bids before they are allowed to be withdrawn, so they can be afforded opportunities to ascertain whether collusion or fraud had been perpetrated against the United States by the parties engaged in the bidding. It is also apparent that if the rule of allowing immediate withdrawals after the results of the bidding are known, frauds innumerable could be perpetrated against the United States and thus public justice would be greatly hampered. ¹⁰⁵

You need to check with your legal counsel to see how this language might be addressed under your particular state law. If the matter has not been challenged and you are faced with a challenge, this case is a good starting point to see how and why this rule has developed in the way it has. This rule is also referred to as the "firm bid rule."

"But I didn't have that language in the solicitation. What do I do?" Again, the answer may well lie in your state laws and your lawyer will have to advise you on what to do.

¹⁰⁴ - FAR § 52.214-15.

¹⁰⁵ - *W. A. Scott v. United States*, 44 C.Cl. 524, 527 (1909).

However, in the absence of this clause, you might want to check § 2.205 of the Uniform Commercial Code, which may be the law in your state.¹⁰⁶ In addressing the FAR clause (or a predecessor clause), the General Services Board of Contract Appeals opined (and reiterated the *Scott* rationale):

This rule for Government procurements also finds support in commercial settings. Under the Uniform Commercial Code, UCC 2-205, 'firm' offers are irrevocable. In *Western Adhesives*, GSBICA No. 7449, 85-2, BCA § 17,961, the appellant attempted to dispute the validity of a contract and default termination on the basis that it withdrew its bid prior to award. The Board found that Government acceptance of a bid during an extended acceptance period granted by the bidder created a valid contract because the solicitation was a formally advertised procurement for which bids were irrevocable during the acceptance period. Failure to perform after acceptance justified default termination. The Board concluded, 'this appeal turns on the firm bid rule. A bid submitted in a formally advertised procurement -- sealed bid -- is irrevocable, and an acceptance after an attempted withdrawal will create a contract.' *Western Adhesives*, 85-2 BCA [§17.961] at 90,018.¹⁰⁷

If a bidder withdraws its bid according to the allowances in the prior section, you will normally proceed to the next lowest bidder without expecting compensation from the erring bidder. However, if the bidder is refused permission to withdraw, and attempts to withdraw by failure to perform (e.g., failure to produce a performance bond), you may be in a position to terminate the bidder for default, minimize your damages by awarding to the next lowest bidder, and recover the damages including the bid differential from the defaulting contractor. You should evaluate all the costs of undertaking this course of action, (including long run effect on competition and pricing) if any, before proceeding.

4.5 COMPETITIVE PROPOSALS (REQUEST FOR PROPOSALS)

4.5.1 Solicitation & Receipt of Proposals

REQUIREMENT
Requests for proposals shall be publicized. ¹⁰⁸

¹⁰⁶ - See, e.g., § 2.205 of the *Texas Business and Commerce Code* which provides: § 2.205. Firm Offers.

An offer by a merchant to buy or sell goods in a signed writing which by its terms gives assurance that it will be held open is not revocable, for lack of consideration, during the time stated or if no time is stated for a reasonable time, but in no event may such period of irrevocability exceed three months; but any such term of assurance on a form supplied by the offeree must be separately signed by the offeror.

¹⁰⁷ - *Nation-Wide Reporting and Convention Coverage*, GSBICA No. 8309, 88-2 BCA 20,521 at 103,741.

¹⁰⁸ - FTA Circular 4220.1E § 9.d.(1).

RFPs shall identify all evaluation factors along with their relative importance.¹⁰⁹

Proposals will be solicited from an adequate number of qualified sources.¹¹⁰ You shall make award only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed agreement. Consideration shall be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.¹¹¹

Awards will be made to the responsible firm whose proposal is most advantageous to the grantee's program with price and other factors considered.¹¹²

In architectural and engineering services procurements, grantees shall use competitive proposal procedures based on the Brooks Act, which requires selection based on qualifications and excludes price as an evaluation factor provided the price is fair and reasonable. (See Section 6.5 – *Architect-Engineering Services*.)¹¹³

DISCUSSION

A request for proposals typically includes all of the elements of an invitation for bids, and in addition shall contain the evaluation factors and their relative importance, e.g., by stating that the factors are listed in declining order of importance. The request can specify the information needed to perform the evaluation, and may require that cost/price information be physically separated so that the technical evaluation can be performed separately from price evaluation. RFPs are typically publicized in newspapers and/or trade journals, and are issued to qualified mailing lists maintained in a manner similar to IFB lists. (See Section 4.3.2.2, "Solicitation Mailing List")

Purpose

The required feature that principally distinguishes an RFP from an IFB is the listing of evaluation factors. These factors typically include not only responsibility factors (such as financial, human, and physical capacity to perform), but also technical factors (such as the degree to which the proposer is expected, based on information submitted and available, to achieve the performance objectives, to provide the quality expected, and on the relative

¹⁰⁹ - FTA Circular 4220.1E § 9.d.(1).

¹¹⁰ - FTA Circular 4220.1E § 9.d.(2).

¹¹¹ - FTA Circular 4220.1E § 7.h.

¹¹² - FTA Circular 4220.1E § 9.d.(4).

¹¹³ - FTA Circular 4220.1E § 9.e.

qualifications of the proposer's personnel). Many RFPs go beyond listing these factors in order of importance, and also describe the evaluation process in detail, listing weights for each factor, illustrating the scoring method, and specifying the procedure for weighing price into the selection.

The purposes for disclosing of the evaluation process are so that:

- offerors can more accurately respond to your needs rather than solely rely on the technical specifications alone;
- proposers will be able to clearly present the information you need to conduct your evaluation; and
- the appearance of favoritism or unethical practice in offeror selection will be diminished.

The competitive proposal process involves a subjective evaluation process and discussions that are typically confidential. Public acceptance and acceptance by disappointed offerors might be less than in the case of sealed bids, if the evaluation and selection process is not well documented and disclosed in advance.

Best Practices

Evaluation and Award - The following is a listing of elements commonly found in the competitive proposal method of procurement.

- Both a technical and cost proposal are requested so that they may be evaluated, frequently by separate staff. Where the appearance of technical objectivity is important, it is a better practice to initially evaluate the technical proposals without knowledge of costs, so that an objective and impartial evaluation can be obtained.
- The evaluation factors to be considered in the award are identified in the RFP along with the relative importance of each. While this requires only the ranking of the factors without quantifying the importance or describing the process for applying the factors to proposals, some agencies disclose their selection process in detail.
- Disclosure Disadvantages. Disclosing the specific weights and scoring processes may encourage proposers to distort their proposals, and may strengthen the disappointed proposer's attack on the agency decision;
- Disclosure Advantages. The full description of the process guides proposers in understanding your needs, bolsters the objectivity of your evaluation team, encourages candor from the proposers during negotiations, and encourages competition through the perception of fair treatment.

- Many standard RFPs notify prospective offerors that award may be made on the basis of initial proposals submitted without any negotiations or discussions. The implication is clearly, that the initial proposal should be their best effort.

Proposal Guarantee - Although performance bonds are often appropriate and required by RFPs, the use of a proposal guarantee is less common than bid guarantee. Because the proposers generally have unavoidable opportunity during negotiations to render their proposals unacceptable, part of the purpose of bid guaranties cannot be achieved in the case of proposals. (See Section 4.3.3.3.2, "Bid Guarantee" and Section 8.2.1, "Performance Bonds.") However, if it is particularly important that the initial proposals be firm commitments by the offerors, that frivolous proposals not be submitted, or that proposers be able to provide performance bonds, then a proposal guarantee in the form of a cashier's check, letter of credit, or approved bond may be cost-effective.

4.5.2 Evaluation of Proposals

REQUIREMENT

FTA Circular 4220.1E, paragraph 9.d, requires the following when procuring by competitive proposals:

- d. Procurement By Competitive Proposal/Request for Proposals (RFP). . . . If this procurement method is used the following requirements apply:
- (1) Requests for proposals will be publicized. All evaluation factors will be identified along with their relative importance;
 - (2) Proposals will be solicited from an adequate number of qualified sources;
 - (3) Grantees will have a method in place for conducting technical evaluations of the proposals received and for selecting awardees;
 - (4) Awards will be made to the responsible firm whose proposal is most advantageous to the grantee's program with price and other factors considered; and
 - (5) In determining which proposal is most advantageous, grantees may award (if consistent with State law) to the proposer whose proposals offer the greatest business value to the Agency based upon an analysis of a tradeoff of qualitative technical factors and price/cost to derive which proposal represents the "best value" to the Procuring Agency as defined in Section 6, *Definitions*. If the grantee elects to use the best value selection method as the basis for award,

however, the solicitation must contain language which establishes that an award will be made on a “best value” basis.¹¹⁴

In architectural and engineering services procurements, grantees shall use competitive proposal procedures based on the Brooks Act, which requires selection based on qualifications and excludes price as an evaluation factor provided the price is fair and reasonable. (See Section 6.5 – *Architect-Engineering Services*.)¹¹⁵

DISCUSSION

FTA Circular 4220.1E – The most recent edition of the FTA Procurement Circular added an item (5) in paragraph 9.d. *-Procurement By Competitive Proposals/Request for Proposals (RFP)* in order to recognize the concept of best value in evaluating offerors’ proposals and selecting successful contractors in negotiated procurements. The FTA Circular, paragraph 6.g, defines *best value* in these terms:

*Best Value: A selection process in which proposals contain both price and qualitative components, and award is based upon a combination of price and qualitative considerations. Qualitative considerations may include technical design, technical approach, quality of proposed personnel, and/or management plan. The award selection is based upon consideration of a combination of technical and price factors to determine (or derive) the offer deemed most advantageous and of the greatest value to the procuring agency.*¹¹⁶

For purposes of this discussion it may be helpful to distinguish the concept of “best value” selections from the more traditional practice of identifying the lowest price, technically acceptable proposal (although that too actually represents what the grantee feels will be the “best value” selection given the nature of the requirements it is procuring). Both approaches will require technical evaluations and price analysis, and both will require the solicitation to clearly inform the prospective offerors of how the selection decision will be made:

¹¹⁴ - Sub-paragraph (5), like paragraph 6.g., recognizes the concept of *best value*. Once again, FTA does not wish to dictate any particular factors or analytic process. Solicitations must, of course, tell potential competitors for the contract what the basis for award will be.

¹¹⁵ - FTA Circular 4220.1E § 9.e.

¹¹⁶ This new definition was intended to recognize the concept of best value. The language is intended neither to limit nor dictate qualitative measures grantees may employ.

- **Best value** - requires tradeoffs between price and non-price factors to select the best overall value to the grantee.
- **Lowest price technically acceptable proposal** - requires selection of the lowest price proposal meeting the minimum RFP requirements.

The FAR Background - The concept of “best value” owes its origin to acquisition reforms espoused in the Clinton-Gore administration’s “Report of the National Performance Review: Creating a Government That Works Better and Costs Less.” In that report, it was recommended that Federal acquisition regulations should be revised and restated with a major objective being (among others) a “. . . shift to a new emphasis on choosing best value products.”¹¹⁷ That reform objective was eventually translated into a completely re-written Federal Acquisition Regulation (FAR) Part 15 – *Contracting By Negotiation*.¹¹⁸ Now the FAR makes *best value* the one stated objective of every negotiated procurement:

15.302 – Source Selection Objective: The objective of source selection is to select the proposal that represents the best value.

Best Practices

The Federal Approach

The FAR describes a “best value continuum” in negotiated procurements where agencies are free to use any one of a combination of source selection approaches. For example, in acquisitions where the requirement is clearly definable and the risks of unsuccessful performance are small, cost or price may play a dominant role in source selection; i.e., the selection may be based on the lowest price technically acceptable proposal.¹¹⁹ Where, however, the agency’s requirement is less definitive, or where there is development work, or greater performance risk, then the less important price will be and the more important will be technical or past performance considerations in the source selection.¹²⁰

The FAR goes on to describe both *the tradeoff process* that is used when selecting a proposal other than the lowest price technically acceptable proposal, as well as the process to be used when the lowest price technically acceptable proposal method is appropriate. Several important

¹¹⁷ - Federal Register Vol. 62, No. 189, Sept. 30, 1997.

¹¹⁸ - FAR Part 15 was reissued by Federal Acquisition Circular (FAC) 97-02 dated October 10, 1997.

¹¹⁹ - The FAR now sees lowest price technically acceptable proposal selection as one end of the best value spectrum but we have distinguished it from best value for clarity of discussion purposes.

¹²⁰ - FAR Subpart 15.101 – *Best Value Continuum*.

principles may be noted from the FAR guidance on source selection that grantees should consider in their own acquisitions:

1. Best value selection methodology affords the agency an opportunity to structure the source selection process in a way that is suitable for the nature of the agency's requirement. No longer is the emphasis on defining one's "minimum needs," with its corollary selection process of choosing the lowest price technically acceptable proposal. While that approach will probably be the one most often used by grantees, agencies are now encouraged to structure selection procedures based on the realities of their requirements, and they are not expected to force-fit all acquisitions into a lowest-price-technically-acceptable-proposal mold when that may result in unacceptable performance risks or preclude the agency from selecting products that are a *better value* to them than the lowest price products or services.
2. When the agency decides that its requirements are sufficiently defined to use the lowest price technically acceptable selection process, *the evaluation factors that establish the requirements of acceptability must be stated in the solicitation*. Solicitations must specify that award will be made on the basis of the lowest evaluated price of proposals meeting or exceeding the acceptability standards for non-price factors.
3. When the agency decides that its requirements are not defined with sufficient precision, or where there are performance risks, so that selection of the lowest priced proposal is not in the best interests of the agency, then a tradeoff process should be used to select the best value proposal. In this case the importance of the non-price evaluation factors that will affect the contract award must be stated in the solicitation. The Federal approach in the solicitation is to state whether all evaluation factors other than price, when combined, are significantly more important than, approximately equal to, or significantly less important than price. This permits the agency to make tradeoffs between price and technical merit. It also permits the offerors to know what is important to the agency - whether to focus on higher quality at the expense of cost, or lower cost at the expense of quality. It is not necessary to publish the specific weights (numerically) of the individual evaluation factors, only their relative importance (i.e., conceptually or adjectivally). Some Federal agencies have found through practice that the approach which gives the greatest degree of flexibility in selecting the best value proposal is to place equal weight on the price and technical factors. This then allows a choice in either direction as circumstances warrant.
4. It is important to note that the perceived benefits of the higher priced proposal must merit the additional cost, and the rationale for tradeoffs must be documented in the file. It is not sufficient to say in the file that company X received a higher total score than company Y, and therefore deserves the award. Scores, without substantive explanations of the relative strengths and weaknesses of the competitive proposals, including the perceived benefits to the agency, are an insufficient basis for paying a

higher price. The file must explain why company X represents the best value to the agency. The necessity of documenting the specific reasons why proposal A offers a better value to the grantee than proposal B is why a mathematically driven selection decision is not appropriate.

Proposal Evaluation Mechanics

There are many different methods of conducting proposal evaluations to determine best value, and many opinions as to which is the best approach. Grantees may employ any rating method or combination of methods, including: color or adjectival ratings, numerical weights and ordinal rankings. Whatever the method, the important thing is that a statement of the relative strengths, deficiencies, significant weaknesses, and risks supporting the evaluation ratings be documented in the contract file.

Some agencies have employed a quantitative approach of assigning scores to both technical and cost proposals, thereby compelling a source selection that is basically mathematically derived. Proponents of this method usually argue it is the most “objective,” and therefore the fairest, approach to determining a winner. On closer examination, however, all approaches are to one degree or another, subjective. The decision regarding what score to assign any given factor is subjective, and any formulas employed after the initial scoring cannot make the process an “objective” one. Further, grantees must be allowed the flexibility of making sound, factually based decisions that are in their agency’s best interests. Any approach that assigns a predetermined numerical weight to price, and then seeks to “score” price proposals and factor that score into a final overall numerical grade to automatically determine contract award, is a mistake. Rather, agencies should evaluate the prices offered but not score the price proposals. Prices should be evaluated and brought along side the technical proposal scores in order to make the necessary tradeoff decisions as to which proposal represents the best overall value to the agency. Agencies should carefully consider the technical merits of the competitors and the price differentials to see if a higher price proposal warrants the award based on the benefits it offers to the agency as compared to a lower price proposal. This is a subjective decision-making, tradeoff process.

The difficulties in trying to assign a predetermined weight to price and then scoring price proposals is that no one is smart enough to predict in advance how much more should be paid for certain incremental improvements in technical scores or rankings (depending on what scoring method is used). For example, no one can predict the nature of what will be offered in the technical proposals until those proposals are opened and evaluated. Only then can the nature of what is offered be ascertained and the value of the different approaches proposed be measured. It is against the actual technical offers made that the prices must be compared in a tradeoff process. Agencies cannot predict in advance whether a rating of “Excellent” for a technical proposal will be worth X\$ more than a rating of “Good,” or whether a score of 95 is worth considerably more or only marginally more than a score of 87. It is what is underneath the “Excellent” and the “Good” ratings, or what has caused a score of 95 vs. a score of 87, that is critical. The goal is to determine if more dollars should be paid to buy the improvement, and

equally important, how many more dollars those improvements are perceived to be worth. It could well be that the improvements reflected in the higher ratings are worth little in terms of perceived benefits to the agency. In this case the grantee does not want to get “locked in” to a mathematically derived source selection decision. This may very well happen when price has been assigned a numerical score and the selection is based on a mathematical formula instead of a well-reasoned analysis of the relative benefits of the competing proposals.

Some agencies have recognized the pitfalls of using arithmetic schemes to make source selection decisions. They have opted to not use numerical scores to evaluate technical proposals and they have gone to adjective ratings instead; e.g., “Acceptable,” “Very Good,” and “Excellent.” They have also heavily emphasized the need for substantive narrative explanations of the reasons for the adjective ratings, and the Source Selection Official then focuses on the narrative explanations in determining if it is in the agency’s best interest to pay a higher price for the technical improvements being offered. In this scenario price is evaluated and considered alongside technical merit in a tradeoff fashion using good business judgment to choose the proposal that represents the best value to the agency.

Proposal Evaluation Criteria

The solicitation will be more easily planned and developed, the criteria will be more accurately listed and ranked, and the evaluation process will be smoother and more objective if the evaluation process is thoroughly planned in advance. The evaluation process begins with the identification of the criteria that will be most meaningful in assessing the relative advantage of the proposals to your agency. You will generally include:

1. **Past Performance** – The solicitation should advise offerors of your approach in evaluating past performance, including evaluating offerors that have no relevant performance history, and should also advise offerors to identify past relevant contracts for efforts similar to your requirement. The solicitation should also allow offerors to provide information on problems encountered on the identified contracts and corrective measures taken. This evaluation should also consider the past performance of key personnel and subcontractors that will perform major or critical aspects of the work. This evaluation of past performance, as one indicator of an offeror’s ability to perform the contract successfully, is separate from the responsibility determination discussed in Section 5.1.
2. **Technical Criteria** – Technical factors regarding the specific methods, designs, and systems proposed to be used by the offeror will be considered and they must be tailored to the specific requirements of your solicitation. These factors must represent the key technical areas of importance that you intend to consider in the source selection decision. *Technical factors should be chosen to support meaningful comparison and discrimination between competing proposals.* If the agency has established minimum standards for determining technical acceptability of proposals, these standards must be clearly set forth in the solicitation.

3. Key Personnel – An evaluation of key personnel is often suggested when the procurement involves services or requirements where management of the work is a critical factor in determining its success. Qualifications and experience of key personnel may be an important evaluation factor. Some agencies have required oral presentations by key personnel during which the agency officials may ask these key personnel relevant questions to determine the depth of their knowledge in critical areas.
4. Cost or Price – Cost or price must be considered in every procurement, even those for professional services (e.g., legal, accounting, etc.), unless the services are those defined by Federal statutes as requiring a qualifications-based selection.¹²¹ Competition normally establishes price reasonableness. Therefore, when contracting on a fixed price basis, comparison of the proposed prices will normally satisfy the requirement to perform a price analysis and no cost analysis will be necessary.

If the contract is to be a cost reimbursement one, then a *cost realism analysis* should be performed to determine what the grantee should realistically expect to pay for the proposed effort. Grantees should never simply accept at face value the total estimated cost in the proposal and base a selection decision on the proposed amount since many offerors tend to understate the estimated cost in hopes of winning the contract as the “low bidder.” A cost realism analysis would use each offeror’s specific labor and overhead rates as estimating factors (assuming they are not understated) and the agency’s own estimates for labor hours, travel, materials, etc. The award decision would be made with the cost realism analysis in mind.

5. Relative Importance of Price and Non-Price Factors - The solicitation must advise offerors if the selection is to be made on a “best value” basis. And as already noted, the solicitation must also advise offerors if price is approximately equal to, less than, or greater in importance than the technical evaluation factors as a whole.

One agency with extensive experience in conducting negotiated procurements uses language in its solicitations that informs offerors of how the agency will select that proposal that is the most advantageous to the agency, which may not necessarily be the highest ranked technically nor the lowest proposed price. They also inform offerors of how price may become a more important selection factor than technical merit when the technical proposals are evaluated as essentially equal. Following is the language used:

The Authority will make the award to the responsible Proposer whose proposal is most advantageous to the Authority. Accordingly, the Authority may not necessarily make an award to the Proposer with the highest technical ranking nor award to the Proposer with

¹²¹ - See Section 6.5 – *Architect-Engineering Services*.

the lowest Price Proposal if doing so would not be in the overall best interest of the Authority. . . .

The overall criteria listed below are listed in relative order of importance. As proposals are considered by the Authority to be more equal in their technical merit, the evaluated cost or price becomes more important so that when technical proposals are evaluated as essentially equal, cost or price may be the deciding factor. ¹²²

Evaluation Criteria:

A. Technical Qualifications (With Details)

B. Overall Price

C. Other Relevant Matters (With Details)

4.5.3 Competitive Range

REQUIREMENT

Grantees will have a method in place for conducting technical evaluations of the proposals received and for selecting awardees. ¹²³

As discussed in this section, "competitive range determination" is a concept that can be used when developing methods for selecting awardees under the competitive proposal method of procurement.

DISCUSSION

At this stage in the competitive proposal procurement, you have received the proposals from interested offerors and have begun the process of evaluation and selection. Negotiation and the repeated analyses and evaluations required can be very time consuming and there is often a wide range of competence or cost-effectiveness in the initial proposals. You may not wish to expend this effort on all the proposals for two reasons:

- **certain proposals, upon evaluation, may be so much worse than others for price or other reasons, that the possibility of accepting a subsequent offer is so remote as to make negotiations unnecessary; and**

¹²² New York City Transit – for more information call Mr. William DeSantis at 718-694-4339.

¹²³ - FTA Circular 4220.1E § 9.d.(3).

- **you may have enough proposals so that you can be assured of negotiating the best buy in dealing only with several of the best; negotiating with more would be wasteful of both your resources and the marginal proposers'.**

For these reasons, a commonly used technique is to conduct negotiations only with offerors determined to be within the competitive range. In assessing the competitive range, competition remains an important objective, and the effort in determining the competitive range is to preserve those proposals which stand a reasonable chance of being found acceptable, not to unduly limit competition by eliminating viable proposers.

Purpose

Competitive range is a difficult concept to define in specific terms which would apply to all potential procurements, because professional judgment must be used in establishing the competitive range. Procedures and factors for determining the competitive range may differ from procurement to procurement.

The competitive range can be determined so that it is:

- Not used to unfairly eliminate offerors;
- Based on factors and criteria known to all offerors;
- Applied uniformly to all proposals; and
- Well documented in the procurement files.

One of your considerations may be that as many offerors as possible be given the opportunity to be considered within the competitive range, so as to attain the goal of full and free competition. Only those offerors whose proposals are determined to be so deficient or so out of line as to preclude meaningful negotiation need be eliminated from the competitive range.

The competitive range can consist of those offerors whose proposals have a reasonable chance of being selected for award, i.e., are acceptable as submitted or can be made acceptable through modification. All responsible offerors whose proposals are determined to be within the competitive range would be invited to participate in any oral and/or written discussions.

Best Practices

While it is not possible to identify all of the specific steps and analyses that could be performed in determining which proposals are within the competitive range, the following are provided for consideration in making this determination:

- The determination of which proposals are within the competitive range is usually made by the evaluation team (or procuring official, if there is no evaluation team).

- Competitive range determinations can be made using cost/price, technical and other factors identified in the solicitation.
- Detailed independent estimates prepared by the initiating department or project office can be considered when assessing the cost/price aspects of competitive range.
- The evaluation team's scoring of offerors' technical and management proposals is a logical basis for establishing which proposals are within the competitive range, as is scoring of other evaluation/award criteria specified in the solicitation. However, you may paint yourself into a corner if you commit to competitive range determinations based on predetermined "cutoff scores."
- Borderline proposals need not automatically be excluded from the competitive range, if they are reasonably susceptible of being made acceptable. Remember that as a general rule, if there is doubt as to whether a proposal should be in the competitive range, the goal of competition is served by including it.
- Only those proposals that are judged to be so deficient or so out of line as to preclude further meaningful negotiations need be eliminated from the competitive range.
- Competitive range determinations are significant documents in the procurement file. This documentation is helpful to serve as a basis for debriefing offerors, and for responding to inquiries and protests. Many systems notify, in writing, any offerors whose proposals have been eliminated from consideration for award. Such notification occurs at the earliest practicable time after this determination is made.
- Written and/or oral discussions are usually conducted with all offerors determined to be within the competitive range.
- At the conclusion of discussions with offerors in the competitive range, the procuring official may ask all offerors to submit their best and final offers in writing. This combines complete fairness for each offeror, with competitive incentive for each to make its best realistic offer. For a discussion on best and final offers, reference Section 4.5.5.2 "*Request for Best and Final Offer.*"

4.5.4 Discussions and Clarifications

DEFINITIONS

Negotiation - A procedure that includes the receipt of proposals from offerors, permits bargaining and usually affords offerors an opportunity to revise their offers before award of a contract.

Discussion - Any oral or written communication between a procurement official and a potential offeror (other than communication conducted for the purpose of minor clarification) whether or

not initiated by the procurement official, that (1) involves information essential for determining the acceptability of a proposal, or (2) provides the offeror an opportunity to revise or modify its proposal.

Clarification - A communication with an offeror for the sole purpose of eliminating minor irregularities, informalities, or apparent clerical mistakes in a proposal.

DISCUSSION

You may wish to obtain clarifications from one or more proposers, or hold discussions with all proposers immediately after receipt of proposals. However, it is also possible to proceed with evaluations and determination of a competitive range as described in the following sections, before discussions are held. Most typically, the first discussions are oral presentations made by a short list of proposers within a competitive range. If discussions are held with any proposer at any phase of the procurement, holding discussions with all remaining proposers (not already excluded from the competitive range as described in Section 4.5.3, "Competitive Range") will increase the likelihood and the appearance of the most accurate and objective evaluation and negotiation.

Best Practices

You are not required to conduct discussions with any offeror provided: (1) the solicitation did not commit in advance to discussions or notified all offerors that award might be made without discussion, and (2) the award is in fact made without any written or oral discussion with any proposer. Normally, however, you will need to conduct discussions. If this is the case, you will preserve the competitiveness and fairness of your procurement by conducting discussions with all offerors who submitted proposals in the competitive range. The competitive range is determined on the basis of cost or price and other factors and includes the proposals that have a reasonable chance of being selected for award. The content and extent of the discussions is a matter of your judgment based on the particular facts of the procurement.

Confidentiality has many advantages during the evaluation process. The name and number of proposals received is not normally considered a public record and need not usually be released to the competitors or the public at large. Your control of this information may ease the proposers' competitive tension and allow you to conduct more meaningful negotiations. Competitive information provided relative to both the technical and cost proposals may include trade secrets protected by statute and can usually be kept confidential during the evaluation process, and, in some instances, after the award of contract. However, state public information laws and the Federal Freedom of Information Act can also affect your latitude, particularly if there is public interest in the procurement and inquiries are made by non-competitors.

If you enter negotiations or discussions (as opposed to simple requests for clarification) with one offeror, an automatic impression of unfairness is avoided by entering them with all remaining offerors. An occasional mistake is to circumvent the process merely by requesting "clarifications" when you are in fact conducting discussions. If the questions, and the concurrent

opportunity to respond, are sufficient to lead an offeror into areas of perceived deficiency in its proposal, discussions have been held. If discussions are held, what should the content be or how should they start? Competition and fairness are served by conducting meaningful discussions with offerors.

This includes advising them of deficiencies in their proposals and affording them the opportunity to satisfy the requirements by the submission of revised proposals. You are not, however, obligated to afford offerors all-encompassing discussions, or to discuss every element of a technically acceptable, competitive-range proposal that has received less than a maximum possible score. Also, if a proposal is technically unacceptable as submitted and would require major revisions to become acceptable, you are not required to include the proposal in the competitive range for discussion purposes.

Sometimes you may be in the uncomfortable position of having concluded discussions only to discover there is a significant mistake or an aspect the evaluators do not understand in one proposal. Since allowing one bidder to correct its proposal would constitute discussions with that firm, discussions must be reopened with all bidders in the competitive range and they must be allowed the opportunity to submit revised proposals.

During discussions with offerors, you may be requested to ask all proposers to submit proposals with an advantageous approach proposed by one of them. Someone on your team may suggest that a technique used by proposer A would complement proposer B's approach well and could result in an advantageous offer from B. Also, after price proposals have been evaluated, someone may suggest that a proposer with a high technical score should be asked if it can meet a price which happens to be the price of a competitor. Such techniques are considered technical leveling, technical transfusion or auctioning. The disadvantage of these techniques is that proposers may react adversely. Because they are concerned about their position relative to their competitors, and want to keep their strengths confidential from their competitors, they may become more secretive in their discussions with you if they sense you may relay their ideas, pricing, or positions to their competitors. This is not to discourage discussion of price or suggesting major revisions in a proposal, but rather to discourage the disclosure, even indirect, of one proposer's information to another. They may hold back their strengths and valuable information, waiting for a BAFO. This can greatly inhibit the negotiation of the most advantageous proposal.

4.5.5 Additional Submissions

4.5.5.1 Request for Revised Proposals

DISCUSSION

The most common tool used by procurement officials in competitive negotiations is a request for a revised proposal. Typically, the deficiencies of a proposal are listed and explained. A complete revised proposal, including price (except under the Brooks Act) is

requested from each offeror in the competitive range. Unless explicitly stated otherwise, the revised offer extinguishes the prior offer. The proposer should identify all changes in the revised offer. The submission of the revised offers can trigger another round of evaluations, determination of a new competitive range, and discussions. You may repeat this cycle as many times as necessary to obtain the most advantageous offers. If you conclude you have obtained the most advantageous offer possible, you may recommend award.

Purpose

The purpose of the request for revised proposals, like the original request for proposals, is to harness the competitiveness and creativity of the proposers to produce the most advantageous proposal for your customers. You and the proposer may understand only gradually each other's capabilities and constraints. Each written proposal may raise new questions and new possibilities. You can elicit the best improvement each time a revised proposal is prepared by listing clearly the deficiencies of the current proposal as you understand it.

Although you expect proposers to respond primarily to your requests in preparing revised offers, you also want to learn how your requests affect other aspects of their proposals. Based on the format of the proposals and the nature of the changes you are requesting, you may require that revised proposals be submitted in a form that will both easily allow you to identify the changes and also form the basis of a coherent contract, if accepted.

Private parties in bilateral negotiations would probably make counter-offers to each other to advance the process. There are disadvantages to your making a counter offer in a competitive proposal procurement. Not only would a counter-offer on your part extinguish the proposer's last offer, it would place the proposers (possibly more than one) in the position to accept or reject. Therefore counter-offers are usually not made by procuring agencies.

4.5.5.2 Request for Best and Final Offer

DEFINITION

A best and final offer (BAFO) can be requested of each offeror in the competitive range at the conclusion of discussions (negotiations) with those offerors. If an offeror does not respond to your request, your procedures may allow you to consider the most recent offer to be the best and final offer.

DISCUSSION

As the procuring official, you are now at the stage of your competitive negotiation process where you are ready to receive final offers from the offerors still within the competitive range. You now ask for a "best and final offer" from those offerors. If the other offers have no viable chance of being made competitive by this time, then you may request the

BAFO from only one proposer; of course there is little competitive pressure under those circumstances. Upon timely receipt of the BAFO(s) and final evaluation by the agency, you should be in a position to recommend award to a firm or individual in accordance with the terms and conditions of the solicitation.

Purpose

During the course of the evaluation process of the competitive proposal procurement, you have entered into discussions (negotiations) and clarifications¹²⁴ with those offerors still in the competitive range.¹²⁵ As a result of those discussions, you may have amended some parts of the solicitation and may have asked for revised proposals during the negotiation process. You now feel that you have completed negotiations and are ready to ask for and then evaluate the offerors' best and final offers. If you believe there is a significant possibility that even if a BAFO is requested, you will probably want to improve further on the next offers, then you are not ready to request BAFOs and should, instead, request revised offers. This provides the offerors an opportunity to respond to the requests and to provide their best offer in response to the current solicitation.

Best Practices

The ability to enter into discussions with offerors in the competitive range is one of the greatest advantages of utilizing the competitive proposal method of procurement. This process allows offerors to resolve questions and concerns they may have about the commodity or service being procured and the public agency to resolve questions and concerns it may have about the offerors' proposals. At some point during the negotiation process, a decision is made that all out-standing issues have been resolved to the satisfaction of the parties involved. This is the time to formally conclude the discussions by requesting that each offeror remaining in the competitive range submit its best and final offer. The request normally would include the following elements:

- Specific notice that discussions are concluded;
- Notice that this is the opportunity for the offeror to submit a best and final offer;
- A definite, common cutoff date and time that allows a reasonable opportunity for the preparation and submission of the best and final offer; and
- Notice that the final offer must be received at the place designated by the time and date set in the request and is subject to any provisions dealing with late submissions, modifications and withdrawals of proposals set forth in the solicitation.

¹²⁴ - See discussion in Section 4.5.4, "Discussions and Clarifications."

¹²⁵ - See discussion in Section 4.5.3, "Competitive Range."

Following receipt of the best and final offers, you will evaluate them in accordance with terms of the solicitation and recommend award in accordance with those terms.

Request for subsequent best and final offers - It is the preferred practice to only ask for one "best and final offer." Requests for additional best and final offers should be avoided if at all possible.¹²⁶ However, additional technical or price/cost-related issues may surface as a result of the offeror's final submission or other factors that preclude a reasonable justification for contractor selection and award. If it is clearly in the procuring agency's best interests, discussions may be reopened and the issues resolved. Again, at the conclusion of the round of discussions, an additional request for best and final offers would be issued to all offerors still within the competitive range.

4.5.6 Award Based on Initial Proposals

REQUIREMENT
<p>You shall make award only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed agreement. Consideration shall be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.¹²⁷</p> <p>Awards will be made to the responsible firm whose proposal is most advantageous to the grantee's program with price and other factors considered.¹²⁸</p>

You may accept one of the initial proposals if it can be clearly demonstrated that acceptance of the most favorable initial proposal without discussion would result in a fair and reasonable price. Therefore, as a general matter, it is advantageous for solicitations to contain a notice that award may be made without discussion of proposals received, and that proposals should be submitted initially on the most favorable terms possible, from a price and technical standpoint.

You are not required to conduct discussions with any offeror provided: (1) the solicitation did not commit in advance to discussions or notify offerors that award might be made without

¹²⁶ - Multiple rounds of best and finals tend to create suspicion in the minds of offerors about what the motive is for the subsequent requests, particularly if does not appear that negotiations are being reopened for a discussion of substantive matters. The preparation of proposals can be a very time-consuming and expensive process and it is possible that, for one of these or some other reason, an offeror may decide not to submit a response to a 3rd or 4th request for a best and final offer. Also, if you make a practice of multiple BAFOs, you may not receive "best" offers in the first round during future procurements.

¹²⁷ - FTA Circular 4220.1E § 7.h.

¹²⁸ - FTA Circular 4220.1E § 9.d.(4).

discussion, and (2) the award is in fact made without any written or oral discussion with any proposer. This is often the case where the proposal is for services where rates are regulated and the competition is on the basis of service, e.g., certain types of insurance. If you accept an initial offer, the determination of fair and reasonable price will be an important document in your file. Normally, however, you will need to conduct discussions.

4.5.7 Withdrawal of Proposal

DEFINITION

Firm offer - A promise to undertake specified obligations in exchange for consideration which promise may be accepted for a specified or implied period of time; a firm offer cannot be withdrawn during the period for which it remains firm.

DISCUSSION

Your solicitation normally states a date and time by which offers must be submitted, and a period following that date during which the offers remain firm. (See Section 4.3.2.3, "Solicitation") Competition is best served and unnecessary alternate proposals are avoided by allowing proposers to withdraw or modify their proposals up to the time due. However, after the due date, the proposals are usually firm and cannot be withdrawn during the validity period. To ensure the legitimacy of proposals and discourage frivolous proposals, you should have the right to accept an initial proposal without regard to whether the proposer has had second thoughts.

Purpose

As in the case of sealed bids, it is important to the integrity of your procurement that all offers are serious and not submitted for exploratory reasons or to cast a certain light on other offers. Although the negotiation process, in contrast to sealed bidding, reduces the incentive to this sort of gamesmanship, the concern is still valid, particularly where you may wish to accept an initial offer. It will be important to proceed from offer to offer, eliminating offerors from the competitive range on a firm basis, to ensure that you arrive smoothly at a conclusion. It is customary, therefore, not permit proposals to be withdrawn after submission.

Best Practices

The terms of your solicitation and your requests for revised offers or BAFOs can state a period during which the offers remain firm. (See Section 4.3.2.3, "Solicitation") A good practice is to note this period on the offer form used by proposers to summarize their proposals.

Solicitations also often state that modifications or withdrawals will be permitted until the time due. In the case of a revised offer or BAFO, your solicitation can provide that the withdrawal of the offer would result in the continued validity of the most recent offer.

4.5.8 Debriefing Unsuccessful Offerors

DISCUSSION

Proposers excluded from the competitive range or from award may request a debriefing or you may offer to provide a debriefing. A candid explanation of the process can serve the purposes of defusing any potential dispute by the disappointed proposer and encouraging future proposals. If a dispute is already probable, there is no requirement to notify or debrief unsuccessful offerors, but the litigation and other risks must be carefully weighed.

Best Practices

Your decision not to include a proposer in the competitive range or to recommend award to another proposer may have to be explained to the public and to the offeror.¹²⁹ If the reasons and rationale are documented, you can proceed with confidence. Here, the advantages of an objective, quantified scoring process¹³⁰ implemented by a qualified committee become obvious; even if you choose not to reveal the details of the scoring, you will be more convincing when speaking with the support of a wealth of independent, objective data. In some cases, the details of the scoring may be subject to disclosure as public information after the contract is awarded.

By notifying the disappointed firm expeditiously, you will not permit doubts to grow, you can approach the firm on the basis of openness and candor, and you will share the common perspective of the events to date of your decision, rather than any subsequent developments which may cast a different light. Be prepared to discuss the reasons with the offeror. This may be a good opportunity to educate a firm or individual on the competitive proposal process. Avoid comparisons to the successful offeror. Focus on the strengths and weaknesses of the offer itself -- be specific. If done properly and professionally, you may see this "smarter" proposer again in a future procurement. This is your ultimate goal, to maximize competition.

On the other hand, unless your procedures require you to notify the disappointed proposer immediately, you may be able to wait to inform the firm until contract award is made to the successful proposer. Particularly if you have reason to believe a firm is inclined to dispute or delay the action, you may be able to proceed unilaterally without encouraging any delaying tactics. To maximize the likelihood of award without delay, this alternative school of thought faces a number of problems. The disappointed firm may be suspicious because you have not contacted him/her about any further discussions, or may otherwise learn that its offer is not being

¹²⁹ - A very significant caveat must be issued at this time. If your governing body (city council, county commissioners, board of directors, etc.) has reserved unto itself the sole authority to reject bids for whatever reason, you, as the procurement official, have no authority to make that final determination and notify the bidder until your governing body has concurred with your recommendation.

¹³⁰ - See Section 4.5.2, "Evaluation of Proposals."

considered for award. If you wait until award is made (which is a public action), the proposer will be left with only two choices, to do nothing or to file legal action. If the firm chooses the first course of action, he/she may be reluctant to propose on your jobs again because they may believe "games" were played. If the proposer chooses the second course of action, to file either a protest or a lawsuit, this may result in a delay in the commencement of contract performance and substantial other costs to your agency.

4.6 NON-COMPETITIVE (SOLE SOURCE) PROPOSALS

4.6.1 Justification for Use

REQUIREMENT

In addressing the various methods of procurement that may be used, Section 9.h of FTA Circular 4220.1E provides:

Procurement By Noncompetitive Proposals (Sole Source). Sole source procurements are accomplished through solicitation or acceptance of a proposal from only one source, or after solicitation of a number of sources, competition is determined inadequate. A contract amendment or change order that is not within the scope of the original contract is considered a sole source procurement that must comply with this subparagraph.

1. Procurement by noncompetitive proposals may be used only when the award of a contract is infeasible under small purchase procedures, sealed bids, or competitive proposals and at least one of the following circumstances applies:
 - (a) The item is available only from a single source;
 - (b) The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation;
 - (c) FTA authorizes noncompetitive negotiations;
 - (d) After solicitation of a number of sources, competition is determined inadequate; or
 - (e) The item is an associated capital maintenance item as defined in 49 U.S.C. § 5307(a)(1) that is procured directly from the original manufacturer or supplier of the item to be replaced. The grantee must first certify in writing to FTA: (i) that such manufacturer or supplier is the only source for such item; and (ii) that the price of such item is no higher than the price paid for such item by like customers.

- | |
|---|
| <p>2. A cost analysis, i.e., verifying the proposed cost data, the projections of the data, and the evaluation of the specific elements of costs and profit, is required.</p> |
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DISCUSSION

Sole source solicitations may not be issued nor may noncompetitive proposals be accepted except under the unusual conditions listed above. Often, there are practical means of obtaining competition which are not at first apparent. If a non-competitive proposal is accepted, a careful cost analysis must be done. Because of the strict scrutiny applied to sole source procurements, painstaking documentation of the justification for the noncompetitive proposal and of the cost analysis is valuable in the long run. FTA approval for noncompetitive negotiation is not required unless you are relying on justification (c) in the Circular. This places a heavy burden on you to ensure you use noncompetitive negotiation only in the public interest and according to the Federal requirements. State requirements may be more restrictive than Federal.

Purpose

Public procurement essentially operates in an environment where full and open competition is the primary goal or aspiration and, in many cases, is a mandate.¹³¹ However, there may be very legitimate reasons or situations when, as opposed to "full and open" competition, limited or no competition exists. The FTA, through the requirements set forth above, has established guidelines when sole source procurements may be used if FTA funds are involved.

Even though we will address federal requirements in this section, you should also be aware of any limitations or restrictions that your state law or agency regulations may place on you.

Because procurement by sole source is a noncompetitive procurement, it is treated as an "exception-to-the-norm" in public procurements and, as a result, your ability to use it requires justification and, frequently, pre-approval before you award a sole source contract. In this context, "justification" equates to paperwork and documentation, the bane of all procurement professionals but a necessary part of our genetic make-up.

Best Practices

As quoted above, FTA Circular 4220.1E establishes a matrix that should be followed in justifying the use of noncompetitive or sole source procurements.

¹³¹ - See, e.g., FTA Circular 4220.1E § 8.a.: "All procurement transactions will be conducted in a manner providing full and open competition."

Step One - You must first determine that your requirement cannot be obtained under small purchase procedures,¹³² sealed bids,¹³³ or competitive proposals.¹³⁴ Does more than one source exist? Does adequate time exist to obtain your requirement through a competitive process? Is Item B (for which competition exists) an acceptable substitute for Item C (for which there is only one source)?

- Stated another way, contracting officers should take reasonable steps to avoid using sole source procurement except in circumstances where it is both necessary and in the best interest of the agency.
- If one of the three methods can be used (or is feasible), even if you would rather not, sole source is not an option for you.

Step Two - If one of the competitive processes is not feasible in your situation, you may use sole source procurement if at least one of the following circumstances is present:

- The item is available only from a single source - In justifying the use of this circumstance, you will frequently address such factors as:

<p>Single Source Factors:</p> <p>How did you arrive at the conclusion this item represents your minimum need or requirement? Is this a "nice to have" with all the "bells and whistles" or does it really represent your requirement or minimum need?</p> <p>How did you determine availability? Did you check on prior procurements for the same or similar items?</p> <p>Are there other sources? Are they responsible? Are identical or compatible parts or equipment available from any other source?</p>	<p>Examples:</p> <p><i>Utility services</i> (how many sources do you have for electricity in your community?) <i>Limited rights in data, patent rights, copyrights, or secret processes</i> (If one entity owns the patent on a process or product you require, can anyone else meet your need?) <i>Relocation of a major natural gas distribution line from your rail right of way</i> (the natural gas utility company is the only source available to work on the gas line)</p>
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¹³² - See discussion of small purchase procedures in Section 4.2, "Small Purchases."

¹³³ - See discussion of sealed bidding procedures in Sections 4.3 and 4.4.

¹³⁴ - See discussion of competitive proposals in Sections 4.3 and 4.5.

Who prepared the specification or statement of work? Did a vendor or contractor assist? If so, will they benefit somehow by the decision to proceed with a sole source contract?	
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- The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation- Two factors: public exigency or emergency and no time to competitively procure!
- When your agency's need for the supplies or services is of such an unusual or compelling urgency that the agency would be seriously injured unless sole source procurements were utilized, it can be justified.
- In an emergency situation, it is not unusual for health and safety issues to be a factor in the decision to proceed with a sole source.
- If the agency itself is responsible for being short of time -- i.e., lack of advance planning, delays in procurement administration due to shortage of procurement personnel or incompetence of procurement personnel, money in the budget balance expires the end of next month, particular caution should be exercised in making a determination regarding whether the emergent consequences of delay warrant noncompetitive negotiation and to what extent the agency contributed; an independent opinion may be warranted.
- If the emergency is to repair a hole in the roof of your maintenance facility where a tree limb fell through it because of the storm last night, is the sole source procurement a patch job or a replacement of the roof because it was getting old anyway? One school of thought is that you should only perform the minimal work necessary to alleviate the exigency or the emergency. Don't use it as an excuse to do remedial work or buy a year's supply of something you intended to do competitively next month anyway.
- While many state laws parallel the other conditions under which Federal funds may be used for non-competitive proposals, state laws for emergency situations are often more restrictive. Furthermore, *the most critical delay in an emergency may be obtaining your agency's authority*, e.g. at a monthly board meeting; inquire about (and recommend changes to, if appropriate) your Board's policy for emergency procurements.
- FTA authorizes noncompetitive negotiations - You may have a situation you feel warrants the utilization of sole source procurements but it doesn't quite fit into one of the other circumstances. You are a small transit property with a vehicle monitoring system you installed last year. The accuracy and utility of the system is exceeding all expectations and you now need to display the schedule adherence information in three new downtown transfer locations. Could you go sole source to Brand X? If you justify why (compatibility requirements, interfaces with proprietary software, unavailability of interested competition,

etc.), this may be the sort of procurement you should discuss with the FTA and request its permission to use sole source.

- After solicitation of a number of sources, competition is determined inadequate - You have issued an IFB and only received one bid from a responsible contractor, but you cannot determine its price to be reasonable. If you are satisfied about the bidding environment and the reasons why you only received one bid, you can negotiate a sole source contract to arrive at a reasonably priced contract.
- The item is an associated capital maintenance item as defined in 49 U.S.C. § 5307(a)(1) that is procured directly from the original manufacturer or supplier of the item to be replaced. - This topic is discussed in greater detail in § 4.6.3, "Associated Capital Maintenance Item."

Step Three - DOCUMENTATION of justification. It is recommended that you document very thoroughly and carefully the rationale you went through to justify your sole source procurement. Your agency may have very specific requirements for "Findings and Determinations" that must be followed. You may have pre-approval requirements at a certain dollar threshold that must be met -- your Board of Directors may require its approval of any proposed sole source procurement in excess of \$250,000 prior to the commencement of the negotiations. You may have other documentation requirements peculiar to your agency, state, or local government that you must meet prior to the initiation of negotiations which must be met.

4.6.2 Negotiation of Contract

DISCUSSION

"Once I have justified the use of procurement by noncompetitive proposals, what do I do next? How do I negotiate this thing?"

Best Practices

Single Offer after Competitive Solicitation - As previously discussed in Section 4.4.3, "Single Bid," you may conclude after receiving only a single bid that competition is inadequate and that you should negotiate with the single bidder to establish a fair and reasonable price. You may be in this situation because you only received one bid or proposal from one source or you have determined that the competition you received was otherwise "inadequate." To proceed in this case, you must meet the requirements for noncompetitive negotiation. However, you do not need to issue a new solicitation because your requirement is adequately stated. You may, after meeting the requirements of the previous section, proceed to negotiate a reasonably priced contract using the negotiation procedures discussed in Sections 4.5.2, "Evaluation of Proposals," through 4.5.8, "Debriefing Unsuccessful Offerors."

All Other Cases - In other circumstances you have justified, it is recommended that you request a proposal from the source. There is no need to advertise - there will be no competition! Your request for a proposal can be as formal as you want -- from letter requests up to a full blown solicitation document. Regardless of the form used, you want to:

- refer to, or attach, all terms and conditions of the solicitation. You still need to comply with federal representation and certification requirements. You still will want to have special and general provisions. You may have additional agency requirements that must be met. What is the DBE goal for this procurement -- how will it be met?
- refer to, or attach, the specifications or statement of work for the supply or service being procured.
- request the applicable cost or pricing data.¹³⁵

Allow adequate time for the contractor to prepare its proposal prior to submission back to you.

Review the proposal with impacted internal agency staff -- really prepare for your negotiations with this sole source.

Negotiate the final terms and conditions of the contract using the negotiation procedures you would use in your competitive proposal method of procurement.¹³⁶ These negotiations can be more pointed and open because there is no competitive environment involved -- the integrity of a procurement process is not involved so issues like "technical leveling" and "transfusion" do not have to be considered.

As discussed in Section 5.2, "Cost and Price Analysis,"{and as required by FTA Circular 4220.1E § 9.h.(2)}, a cost analysis is required. This includes verifying the proposed cost data, the projections of the data, and the evaluation of specific elements of costs and profit.

4.6.3 Associated Capital Maintenance Item

REQUIREMENT
Original Equipment Manufacturer components may be procured by competitive negotiations only if: (e) The item is an associated capital maintenance item as defined in 49 U.S.C. § 5307(a)(1) that is procured directly from the original manufacturer or supplier of the

¹³⁵ - See discussion of the submission of cost and pricing data in Section 5.2, "Cost and Price Analysis."

¹³⁶ - See discussion of negotiations under competitive proposal method at Section 4.5.2, "Evaluation of Proposals."

item to be replaced. The grantee must first certify in writing to FTA: (i) that such manufacturer or supplier is the only source for such item; and (ii) that the price of such item is no higher than the price paid for such item by like customers.¹³⁷

DEFINITION

Associated capital maintenance item - Equipment, tires, tubes, or material, each costing at least 0.5 percent of the current fair market value of rolling stock comparable to the rolling stock for which the equipment, tires, tubes, and material are to be used.¹³⁸

DISCUSSION

If you can purchase a replacement part or component for rolling stock only from the original manufacturer, and the item costs at least 0.5% of the vehicle price, then you may procure the item by noncompetitive proposal provided you make the requisite certifications in advance to FTA and determine the price to be reasonable based on a cost analysis.

Best Practices

In order to "qualify" to use this circumstance to justify sole source, the FTA has established the following requirements:

- The item must be an associated capital maintenance item as defined above.
- The item must be procured directly from the original manufacturer or supplier of the item to be replaced.
- Prior to execution of the contract, you must first certify in writing to the FTA that such manufacturer or supplier is the only source for such item; and that the price of such item is no higher than the price paid for such item by like customers.

Approval of the FTA is not required -- just certification of the grantee (you).

When you read these requirements carefully, you are still essentially justifying a sole source {as in FTA Circular 4220.1E § 9.h.(1)(a)} and certifying that fact to the FTA. Also, even though you are certifying that the price of the item is no higher than the price paid for such item by like customers, you are still required to perform a cost analysis as part of the contract negotiation and award process.

¹³⁷ - FTA Circular 4220.1E § 9.h.(1)(e).

¹³⁸ - 49 U.S.C. § 5307(a)(1).

4.6.4 Unsolicited Proposals

DISCUSSION

The subject of unsolicited proposals is one not covered in transit law or the common grant rule. In cases like this, FTA would look to the Federal Acquisition Regulations (FAR) provisions as a guide concerning the circumstances under which a sole source award would be appropriate. The FAR covers this subject as FAR Part 15.6. The FAR is available online at <http://www.arnet.gov/far/>.

When unsolicited proposals are submitted to a grantee, the agency must never assume that the product being offered in the unsolicited proposal is the only, or best, product available to meet the needs or objectives of the agency. The essential consideration in whether or not to accept an unsolicited proposal without competition (i.e., to make a sole source contract award) is whether or not the proposal is presenting an innovative, proprietary concept that is itself essential to accomplishing the agency's objective. If a company is merely presenting a rationale for doing certain work that could be done by others if given the chance to compete, then there is no permissible basis to award a sole source contract.

In the case of a proprietary software product that is being offered to achieve a certain goal, the transit agency receiving the proposal could not, for example, release the offeror's proprietary programming codes in a competitive solicitation. But the agency should, if it deems the mission one it wants to pursue, compete the contract award in terms of describing what the agency's objective or mission is in order to see what other firms might offer in terms of software solutions.

New York City Transit (NYCT) requires that any contract resulting from an unsolicited proposal be justified in writing by the Procurement Office, regardless of the department that received the proposal. Each proposal is reviewed to determine if the goods or services being offered are essential to NYCT and whether the proposer is simply offering something that can be obtained through open and competitive bidding. If it is determined that the goods or services being offered would benefit NYCT, and could be obtained through competitive bidding, then there is not sufficient justification for a sole source award.

Revenue Contracts - The subject of unsolicited proposals is discussed in the context of revenue contracts in BPPM section 1.3.3.8 – *Revenue Contracts*. With respect to unsolicited proposals in the context of companies seeking to use FTA funded assets for business purposes, the BPPM offers the following guidance:

“Unsolicited Proposals - These may come forth when companies see an opportunity to use the transit system (an FTA-funded activity) to enhance their business interest. It may appear from such proposals that no other company could offer the same product or service. However, this does not justify a sole source contract. If the idea or activity is of

interest to you, the concept should be evaluated on its own merit and revenue producing potential. If the decision is to implement it, then a competitive process should be used to select the contractor, *unless you determine that the proposed concept itself is proprietary.*”

New York City Transit (NYCT) was approached recently by a company, which submitted an unsolicited proposal, wanting to install an electronic information system on the subway cars. The company wanted to program the system so that riders would know what was overhead, e.g. Wall Street, theater district. New York City decided to investigate the concept first to determine if it was something that they wanted to do to enhance the subway system. Deciding that they liked the idea, they then prepared an RFP and solicited vendors on a competitive basis.

Metropolitan Atlanta Rapid Transit Authority (MARTA) received an unsolicited proposal from a company about use of subway right-of-way for linking Atlanta with fiber optic cable using MARTA's system-wide conduits. MARTA determined that they had unused conduits and could lease space in them to various telecommunication companies. They contacted the regional FTA office and received their approval for a non-exclusive RFP to seek competitive proposals for twenty-year leases. This has produced successful revenue contracts.

4.7 SPECIAL PROCUREMENT METHODS

4.7.1 Multi-Step Procurements

DISCUSSION

You have discussed in detail the differences between the competitive bidding process and the competitive proposal process but I've got one of those 'tweeners' -- something that falls somewhere between those two processes. There are a number of various technical approaches that would probably meet our requirement and, if we determined which firms met our minimal technical requirements, we could compete amongst them on the basis of the lowest responsive, responsible bidder. But we may have to enter into discussions with all offerors in order to determine technical acceptability. Can this be done?

FTA Circular 4220.1E permits a great number of procedures that vary from the classic procedures discussed in most of this Manual. For example, a variation that has long-been recognized in public procurement is referred to as the two-step, sealed bidding method of procurement. While it has some characteristics of both sealed bidding and competitive proposals, it complies with all FTA Circular 4220.1E requirements for the competitive proposal process. This process allows, in the first phase, for the submission of unpriced technical proposals in response to the request. In the second phase, only those firms that have been found to be technically qualified in the first phase are invited to submit sealed bids, as though it were a regular sealed bid procurement. Award is then made to the lowest, responsive and responsible bidder.

Best Practices

Overview

Two-step bidding is a two-phase process generally consisting of a technical first phase composed of one or more steps in which bidders submit unpriced technical proposals (and discussions are held with offerors of those proposals, if necessary) to be evaluated by the transit property, and a second phase in which those bidders whose technical offers are determined to be acceptable during the first phase have their priced bids considered.

The process is designed to:

- Obtain the benefit of sealed bidding by award of a contract to the lowest responsive, responsible bidder, and, at the same time,
- Obtain the benefit of the competitive proposal method of procurement through the solicitation of technical offers and conducting discussions to determine the acceptability of the technical offers.

The process may be recognized by your state law as a separate method of procurement or may be allowed as a variation of a sealed bidding statute, particularly in those states where limitations on the use of the competitive proposal method exists.

Conditions for Use

Transit properties generally follow one of two stated policies. Either this method may be used when it is not considered practical to initially prepare a definitive purchase or contract description which is suitable to permit an award based on price. Or alternatively, in the absence of factors or laws that require the use of sealed bidding, some authorities ¹³⁹ establish a preference of the two-stepped process over negotiations when all of the following conditions are present:

- Available specifications are not definite or complete or may be too restrictive without technical evaluation (and any necessary discussion), of the technical aspects of the requirement to ensure mutual understanding between each source and the Authority;
- Definite criteria exist for evaluating technical proposals;
- More than one technically-qualified source is expected to be available;

¹³⁹ - This is also the position taken in the FAR § 14.502.

- Sufficient time will be available for use of the two-step method; and
- A firm-fixed-price contract or a fixed-price contract with economic price adjustment will be used.

Phase One of Process

This process normally includes the following steps:

Solicitation phase - In addition to the normal requirements for an IFB, ¹⁴⁰ the first phase solicitation also generally provides:

- That unpriced technical offers are requested; ¹⁴¹
- That the procurement is a two-step sealed bid procurement and that priced bids will be considered in the second phase and only from those bidders whose unpriced technical offers are found to be acceptable in the first phase;
- The criteria to be used in evaluating the unpriced technical offers;
- That the Authority, to the extent determined to be necessary, may conduct oral or written discussions regarding the technical offers;
- A statement that bidders should submit proposals that are acceptable without additional explanation or information and that the Authority may make a final determination regarding the acceptability of the proposals based solely on the basis of the proposals as submitted and may proceed with the second step without requesting further information from any bidder;
- That bidders may designate those portions of the technical offers which contain trade secrets or other proprietary data which are to remain confidential; and
- That the item being procured shall be furnished generally in accordance with the bidder's technical offer as found to be technically acceptable and shall meet the requirements of the solicitation.

¹⁴⁰ - See discussion at Section 4.4.1, "Solicitation."

¹⁴¹ - One variation that could be used if time is particularly tight, would be to ask, as part of Phase One, that the bidders include a sealed bid in a separate envelope that would only be opened in the event the technical offer was considered acceptable. This creates some additional security on the part of the procurement staff because you would want to ensure that the technical acceptability determination was made without knowledge of the prices for the different offers.

Amendments to solicitation in two-step process:

- Amendments issued prior to the receipt of technical offers are important to all prospective bidders as in a "normal" IFB. ¹⁴²
- Amendments issued after receipt of the technical offers need be submitted only to those bidders who submitted unpriced technical offers and they should be allowed to submit new technical offers or amend those previously submitted. ¹⁴³

Receipt of unpriced technical offers. Unless required by law, unpriced technical offers need not be publicly opened.

- Offers are typically opened in front of two or more authority employees as witnesses.
- Offers are usually not disclosed to unauthorized persons.

Evaluation of unpriced technical offers should be in accordance with the criteria set forth in the solicitation. The unpriced technical offers should be categorized as --

- Acceptable;
- Potentially acceptable (i.e., reasonably susceptible of being made acceptable); or
- Unacceptable, in which case the contracting officer records in writing the basis for this finding and makes it part of the procurement file. ¹⁴⁴
- Any proposal which modifies or fails to conform to the essential requirements or specifications of the solicitation can be considered nonresponsive and categorized as unacceptable.
- When an unpriced technical offer has been determined to be unacceptable, the bidder may be notified of that fact and is not normally afforded additional opportunities to submit supplemental information amending its technical offer.

¹⁴² - See Section 4.3.2.5, "Amendment of Solicitation."

¹⁴³ - If, in the opinion of the Contracting Officer, a contemplated amendment would significantly change the nature of the procurement to the extent that other entities (who did not submit unpriced technical offers) would likely become a proposed offeror as a result of the amendment, consideration should be given to canceling the solicitation and issue a new solicitation.

¹⁴⁴ - Documentation of an unacceptable finding cannot be over stressed. Disputes over this determination are the most common area of bid protest in the multi-step process.

Discussions involving unpriced technical offers may be conducted with any offeror who submitted an acceptable or potentially acceptable technical offer.

- Discussions can be conducted in accordance with the principles discussed in § 4.5.4 involving the competitive proposal method of procurement.
- Once discussions have commenced, any offeror who has not been notified that its offer has been found unacceptable may submit supplemental information amending its technical offer at any time until the closing date established.
- Such submission may be made at the request of the Contracting Officer, or upon the offeror's own initiative.

Phase Two of the process may be initiated without discussions if there are a sufficient number of acceptable proposals to ensure adequate price competition under Phase Two. Based upon the results of Phase 1, you may wish to revise the technical specifications (minimum technical requirements) in your Phase 2 IFB, in a manner that does not conflict with the final unpriced proposals. While you have no assurance that the prices will be close to each other, you know to what degree the proposals have competitive technical merit.

Phase Two of the Process

The procedures discussed in Section 4.4, "Sealed Bids," can be followed in Phase Two. Each bidder who submitted an unpriced offer that was determined to be acceptable in Phase One is invited to submit a priced offer. The IFB states that the bidder shall comply with the specifications and the offeror's acceptable technical proposal. No additional public notice or advertisement of the IFB need be given because such notice was given during the Phase One Process.

Award would be made to the lowest, responsive responsible offeror as discussed in Section 4.4, "Sealed Bids."

4.7.2 Governmental Prices and Contracts

4.7.2.1 Procurements from General Services Administration Schedules

CURRENT STATUS

The Federal Supply Schedule program has provided Federal agencies with a simplified process of acquiring commonly used supplies and services in varying quantities at lower prices while obtaining discounts associated with volume buying. Congress, in enacting ' 1555 of the Federal

Acquisition Streamlining Act of 1994 (Public Law 103-455), ¹⁴⁵ extended the cooperative purchasing provisions of GSA enabling legislation:

(b)(2)(A) The Administrator may provide for the use of Federal supply schedules of the General Services Administration by any of the following entities upon request: (i) a State, any department or agency of a State, and any political subdivision of a State, including a local government. . .

However, Section 4309 of the National Defense Authorization Act for Fiscal Year 1996 ¹⁴⁶ suspended the authority of the Administrator of the General Services to allow state and local governments to use the federal supply schedules. The provision suspended the authority until the later of the period ending 18 months after the date of enactment of this Act or the period ending 30 days after the date after the Administrator has reviewed a General Accounting Office report that assesses the effects of state and local governments use of the federal supply schedules and has submitted the report and comments on the report to Congress. The Act also directed the General Accounting Office to include in its report to the Administrator an assessment of the impact on costs to federal agencies from the use of federal supply schedules by state and local governments.

In light of this recent legislation, what is the status of state and local government (including most transit properties theoretically) being able to use the GSA federal supply schedules? It is understood that at least one transit property (Washington Metropolitan Area Transit Authority) has at least limited authority from the GSA to utilize the federal supply schedules. However, we are not aware of other Authorities being able to utilize those Schedules. With this legislation, we must await at least until August 1997 (18 months from the date of enactment of the Defense Authorization Act of 1996) before we know what the GSA and GAO reports to Congress will say and it could be longer than that if the required reports are later than then. This does not appear to be a source that we should expect to be able to use anytime soon.

At such time as this matter is clarified, the FTA, through this Manual, will provide instruction and guidance to its grantees.

4.7.2.2 State and Local Schedules

REQUIREMENT
An additional general procurement standard applicable to third-party procurements included in FTA Circular 4220.1E encourages (at § 7.e) the use of intergovernmental procurement agreements as follows:

¹⁴⁵ - Codified at 40 U.S.C. § 481(b).

¹⁴⁶ - Public Law 104-106, § 4309, 110 Stat. 186, 670 (1996).

(e) Intergovernmental Procurement Agreements.

- (1) Grantees are encouraged to utilize available state and local intergovernmental agreements for procurement or use of common goods and services. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications (including Buy America) are properly followed and included, whether in the master intergovernmental contract or in the grantee's purchase document.
- (2) Grantees are also encouraged to jointly procure goods and services with other grantees. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications are properly followed and included in the resulting joint solicitation and contract documents.
- (3) Grantees may assign contractual rights to purchase goods and services to other grantees if the original contract contains appropriate assignability provisions. Grantees who obtain these contractual rights (commonly known as 'piggybacking') may exercise them after first determining the contract price remains fair and reasonable.

DISCUSSION

FTA has historically encouraged grantees to consider combining efforts in their procurements to obtain better pricing through larger purchases. Joint procurements offer the additional advantage of being able to obtain goods and services that exactly match each cooperating grantee's requirements. FTA believes this is superior to the practice of "piggybacking" since "piggybacking" does not combine buying power at the price stage and may limit a grantee's choices to those products excess to another grantee's needs.

Does your state, county, city, or other local government have a schedule program similar to the GSA Federal Supply Schedule? Are you legally eligible to utilize those schedules? In many ways, this is a topic that is so State and locale-specific, it is impractical to address with any specificity in this Manual. This is an area of the Manual where we solicit comments and best practices from your jurisdiction that would (or could) have application on a national basis.

Purpose

One of the challenges of a transit authority's procurement office is to try to be more responsive to its customers from timeliness and cost-efficient perspectives. It is almost inevitable that someone will take months trying to decide what is required and then is perplexed that the procurement staff cannot procure it "yesterday!" We devoted an extensive discussion in Chapter

2 on the importance of planning in the procurement process and the need for cooperative efforts among the different staff elements of the Authority.

One of the ways that Federal and State governments (to a greater extent) and local governments (to a much lesser extent) have tried to address the timeliness issue is through the use of "schedule" contracts that can be mandated for use on a government-wide basis. If an entity at the state-wide level has a contract that consolidates all requirements for sedans and buys those off a schedule contract, all public purchasers theoretically benefit from this larger quantity buy and do not have to go through a procurement process to obtain those benefits.

Best Practices

Ascertain if your State has a schedule program. It may be for standard commodities such as office supplies and equipment including vehicles of all sorts and sizes as well as computer equipment on either a lease or purchase basis.

Ascertain if your authority is eligible to participate in the program and, if so, how.

- Is an intergovernmental agreement required before you can participate?
- Is the order issued with the State agency or the contractor?
- Do you have any flexibility to make minor changes to the item being bought?
- How is the order funded?

These questions, and obviously many others, all must be worked out with the "parent" agency. It may be difficult to track all of this information down the first time, but after you go through the process once, it will be much easier with each successive procurement you process through these centralized contracts. You will then be able to gauge the savings in time and money that may accrue to your agency by using these contracts.

The same questions can be addressed at the local level. A program might exist at a city, county, parish, school district or any other public special districts. One of the most effective ways to participate in cooperative purchases at the local level is through some sort of inter-local cooperative purchasing agreement. To be able to do this may require special legislative authority, but most States have some sort of Intergovernmental¹⁴⁷ and/or Inter-local¹⁴⁸ Cooperation Act. These statutes usually define not only what can be the subject of agreements consummated pursuant to their provisions, but also define who can participate and under what conditions.

¹⁴⁷ - See, e.g., Chapter 741, Texas Government Code, V.T.C.A.

¹⁴⁸ - See, e.g., Chapter 791, Texas Government Code, V.T.C.A.

Never underestimate the buying power (in terms of quantity you) bring to the local public government buying community, particularly in such areas as diesel, vehicle parts, office supplies and vehicles.

There is some real public relations benefit for your agency by being actively involved in the local government buying community in helping all public bodies get "more bang for the buck" through volume buying of similarly-used commodities.

4.7.2.3 State versus FTA Requirements

REQUIREMENT
The requirements and standards of FTA Circular 4220.1E apply to procurements entered into under such agreements using FTA funds. ¹⁴⁹

DISCUSSION

"I've got no control over what the State puts into its contracts in terms of FTA requirements. The State is concerned with state laws and that contracts fully comply with the competitive requirements of the state. What do I do?"

There really is no easy answer! The problem most agencies face with this requirement is not the competitive methods utilized by the State (or local) governmental entity in establishing these contracts -- most States have a small purchase procedures, sealed bidding and sealed proposal methods of procurement that in all likelihood comply with the federal standards set forth in FTA Circular 4220.1E and discussed earlier in Section 4. Most States similarly buy architect and engineering services in a procedure similar to the federal requirements of the Brooks Act and as discussed in FTA Circular 4220.1E paragraph 9.e and in paragraph 6.5 – *Architect-Engineering Services*.

The problem most of us face is squaring State laws or regulations that differ substantively with the FTA requirements of FTA Circular 4220.1E.

- How do we reconcile State-geographic preference statutes with the full and open competition requirements of the FTA and the Common Grant Rule? These statutes frequently establish a preference for certain services or commodities to in-State sources and may even set-aside certain procurements to in-State sources. If you are using federal funds to procure something off a State schedule and your State has such a restriction, can you participate? Probably not.**

¹⁴⁹ - FTA Circular 4220.1E § 7.e.

- **Recent changes in the applicability of the Buy America provisions of 49 CFR Part 661 (and discussed in Section 4.3.3.2.2, "Buy America Certification") make compliance with those requirements less of an issue now than it used to be because of the \$100,000 threshold. However, for procurements in excess of that amount, you will probably have problems participating because of the certification requirements imposed by Part 661.**
- **The current \$2,000 threshold of the Davis-Bacon Act may preclude you from participating in any State construction contract because, in all likelihood, any wage rate requirement of the State is going to be a State law issue, not the Davis-Bacon Act.**

The list could go on. Under current federal statutory and regulatory guidance and requirements, some of the conflicts between those requirements and the procurement procedures and practices of your State are irreconcilable. Unless the State or local agency is willing to include the FTA requirements in its solicitations and contracts, you may be effectively precluded from participating in those intergovernmental or inter-local procurements. Some relief could come in the future as the FTA continues to examine its policy relative to the applicability of FTA Circular 4220.1E to all procurements if the grantee accepts operating assistance.¹⁵⁰

Until more clarification is obtained and as long as operating assistance is an issue, you may not be able, realistically, to participate in these procurements. You can, however, effectively participate at the truly local level where you can either control the procurement (you buy the diesel fuel using all the federal requirements) and allow the city and school district draw off your contract or, because of the one-on-one interface this process requires, you are able to have the city or school board include the federal requirements in its unleaded regular gasoline contract you want to order from. That works!

Again, we specifically solicit input from you on your successes (and failures) in the area of utilizing State and local government contract schedules or inter-local/intergovernmental procurement agreements and how they have been reconciled with conflicting State and Federal requirements.

4.7.3 E-Commerce: Reverse Auctions

REQUIREMENT

Reverse auctions are subject to all the procurement requirements of FTA Circular 4220.1E, Paragraph 7.q.
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¹⁵⁰ - FTA Circular 4220.1E § 4.

“E-Commerce is an allowable means to conduct procurements. If a grantee chooses to utilize E-Commerce, written procedures need to be developed and in place prior to solicitation and all requirements for full and open competition must be met in accordance with this Circular.”

We would note that *some* states, such as New York, require a sealed bid procedure for competitive procurements. *Where state law requires sealed bidding, reverse auctions may not be legal.* In these situations grantees may still make use of online bidding but the bids must be kept sealed and not disclosed. Grantees must check their state procurement statutes to determine if reverse auctions are permissible. For example, the state of Texas recently enacted legislation allowing reverse auctions. Grantees should consult with their counsel to determine whether reverse auctions are legally permissible under State law.

DISCUSSION

One of the innovations arising out of e-commerce has been the use of *reverse auctions*. The term *reverse auction* refers to a live online auction in which the roles of buyer and seller are “reversed.” In a *normal (forward) auction*, sellers offer to sell at prices determined by the bids of buyers. In a *reverse auction*, buyers are offering to buy something at prices being bid by sellers. “Reverse” refers to the relationship of buyer and seller and who does the bidding. Sellers bid for the right to sell to the buying organization and buyers agree to buy at the price established by the auction process. In a reverse auction proceeding, the buyer advertises and defines on line the commodity for which it is soliciting bids. The buyer may also post a price at which the bidding will begin. These prices will usually be the buyer’s “last good buy” price or an industry standard price, and it should be a price that will encourage suppliers to bid. If the price is set too low, it will discourage sellers from participating. Suppliers, whose identity is kept confidential, then post prices online anytime within the duration of the auction (usually one day to several weeks) so that suppliers can see their competitors’ bids and respond immediately with counter offers. Suppliers can reevaluate and adjust their bid in response to other bidders’ offerings. Some auctions provide for automatic time extensions if a bid is placed in the last five minutes of an auction, in which case an automatic five-minute extension prevents last-second bidding and keeps all participants on an even playing field. It is possible to have several automatic time extensions when bids are submitted in the last five minutes of the event. The transparency of the marketplace creates rigorous competition among the participants, which tends to drive prices lower. Reverse auctions live up to their name by having prices fall. Experience to date with reverse auctions indicates that savings of 15% - 20% from prices previously paid may be possible, especially if additional vendors can be found to bid on the requirement.

Most of the work to be done in a reverse auction takes place prior to the actual event. This includes identifying suppliers who will bid, pre-qualifying them and informing them about the technology that is being used. It is important to define everything up front, including

quality, delivery terms, payment terms, location of use, quantity required and in what lot size. In some cases buyers have issued a Request for Proposals (RFP) as a first step in a “best value” competition in order to evaluate prospective bidders’ products, capabilities, etc. A reverse auction is then conducted among qualified suppliers as a technique to elicit the best possible prices.

Anything that can be described well can be reversed auctioned. This includes goods and services. The key is that the item have features that are measurable, with a clear purchase description in terms of quality and specificity, so that suppliers are bidding on a requirement that is clear to everyone. Doing this will ensure you are able to compare bids for essentially identical goods or services. In deciding if a reverse auction is right for a particular commodity, the agency will need to determine if it has long-term relationships with any one or two suppliers for the commodity, and if so, why? What is valuable about the relationship? Would an auction harm the relationship? Another consideration will be whether there are enough suppliers of this commodity to make it competitive. Any efforts taken to increase the number of bidders who participate in the auction will pay dividends in the end. Finally, the commodity must be such that there is a sufficient profit margin to make prices compressible, so that suppliers have room to bid. And finally, as has already been suggested, reverse auctions need not be limited to lowest - price contract awards; they may be used in “best value” procurements where technical proposals are required and price auctions follow, with contract award being made to the firm offering the best overall value to the buying agency, with both price and technical merits considered.

Best Practices

Federal Government Experience - A number of Federal agencies are now using reverse auctions. The Federal Government began to use this technique with the re-write of the FAR Part 15 in 1997. FAR 1.102.4(e) now states that if a practice is not expressly addressed or prohibited by statute or regulation, Government employees should feel free to innovate and use sound business judgment in making procurement decisions. With respect to auctions, FAR 15.306(e)(3) requires bidders to agree to disclose their prices prior to their participation in an auction event. Based on the FAR, government procurement personnel may use reverse auctions as long as the vendors agree to participate. (Grantees are not required to follow the FAR, and this information on Federal procedures is provided for information purposes).

Navy Department - The Navy Department’s first auction was for aircraft ejection seat mechanisms. This auction lasted 51 minutes, with three bidders, and Navy estimates it saved over 28% off the historical price for these mechanisms. Navy has conducted over fifteen additional reverse auctions since the first in May 2000, for supplies as well as services, using both price and best value as evaluation criteria. Following are some of the “lessons learned” by the Navy Department, as published at their web site: ¹⁵¹

¹⁵¹ - Navy can be contacted by phone at (215) 697-2850. Navy web site info for reverse auctions is: http://www.abm.rda.hq.navy.mil/navyaos/acquisition_topics/contracting_/reverse_auctioning/reverse_auctioning.

- The reverse auction technique may not drastically change or streamline the procurement process.
- It is a highly effective pricing tool.
- Prior to opening the auction, all participating vendors should log on and verify their connection to the system.
- A set period of time for the reverse auction should be established based on the number of participants and the complexity of the acquisition.
- The time established for the auction needs to be flexible in case there is an offer at closing time. For example, if a bid is received within one minute of the closing time for the auction, the auction period should be extended for an additional number of minutes to allow bidders to respond to the last bid.

Marine Corps - The U.S. Marine Corps has also published their experiences with reverse auctions. The Marine Corps took concerted efforts to build a database of vendors for various product types and to include more vendors, train them on the reverse auction tool, and get them to participate in their first auction. The result was significantly increased competition. The average auction has lasted 30 minutes with award made directly thereafter. The average savings for the eight auctions thus far have been 25% from the estimated values based on historical and retail prices. The Marine Corps reports that vendors actually prefer this process to the sealed bid process. The Marine Corps Regional Contracting Office Southwest (RCO SW) received the Department of the Navy Competition Excellence Award for the implementation of this innovative practice.

Army - The Army is using reverse auctions for *best value* types of procurements. Following is an excerpt from the Army procurement procedures guide as reproduced in the DOD *Defense Acquisition Deskbook*:

Applicability to Best Value Acquisitions

Reverse auctions are legal as long as the identity of the bidders is not disclosed. You may use them for trade-off acquisitions as a pricing tool. Once you have finished with technical discussions, you may conduct a reverse auction to establish the offerors' final prices. Provide these prices, along with the rest of the evaluation results, to the Source Selection Official for his/her use in selecting the proposal that represents the best value. A potential benefit is that competition will drive the prices down as the offerors have visibility of the other prices being proposed.

You may use reverse auctions to purchase a variety of products and services. Reverse auctions work especially well on acquisitions of manufactured items. While you can use

reverse auctions to buy commodities, these items usually have smaller profit margins and therefore, the potential benefits are less.

When using reverse auctions in a best value acquisition, ensure the auction does not drive prices down to the point that the resultant contract does not provide enough incentive for the contractor to provide quality supplies and services.

Use of reverse auctions is appropriate at different points in an acquisition. For example, you may use them to achieve the offerors' final price or you may use them to downsize the number of offerors, but decide not to use them for the final negotiations. ¹⁵²

Air Force - The Air Force Contracting Policy Memo on Reverse Auctions (February 19, 2001) was issued after research on how reverse auctions are being used in private industry, and the memo provides a number of “lessons learned.” Among these were:

- Reverse auctions are being used by industry more for “best value” acquisitions than for lowest price acquisitions. (The Sun Microsystems’ case discussed below under “Private Industry Experience” illustrates this.)
- Suppliers are normally pre-qualified, including past performance, and then a reverse auction is used for the submission of competitive prices.
- A responsibility determination is performed on the apparent successful bidder.

The Air Force procured a motorized security gate for one of its facilities and requested technical proposals first. Those firms submitting acceptable technical proposals then submitted prices online through a reverse auction. The apparent low bidder was then required to submit a cost proposal for evaluation. Finding the proposal satisfactory, a contract was awarded. Air Force was pleased with the results of the process.

Treasury Department – The U.S. Treasury Department (IRS) conducted, in May 2001, its first auction and one of the largest Federal auctions to date: \$131 million for PCs, laptops and monitors. Treasury estimates it saved about \$68 million in a very successful auction. An example of the savings achieved was the reduction in the unit price of a top-end desktop computer from a pre-auction price of \$1,434 to \$625 (a savings of 56 percent). There were three distributors that submitted bids, representing IBM, Gateway and Dell. The IRS requirements were solicited on a best value basis. ¹⁵³

¹⁵² - Army Source Selection Guide, June 2001, may be found at: <http://www.amc.army.mil/amc/rda/rda-ap/docs/assg-2001.pdf>. Click on Appendix I for information on On-Line Reverse Auctions.

¹⁵³ - Contact Mr. Geoff Gauger at Treasury for additional information: (202) 622-0203.

Treasury has also had success with small buys. Many of those buys were below \$25,000 and several were below \$1,000. More than \$300,000 in purchases have been made in 2002, with some impressive results. Customs saved 43 percent on the purchase of a shredder and the Financial Crimes Enforcement Network saved 87 percent on two 265-megabyte memory kits. Vendor interest has been great. For example, the Bureau of Public Debt has been averaging 72 bids per auction. In all, close to 2,000 bids have been received from over 330 firms. Another noteworthy achievement is that the Bureau of Public Debt, the ATF and Customs have awarded 100 percent of their auction results to small businesses.¹⁵⁴

General Services Administration (GSA) – GSA maintains a reverse auction web site for Federal agencies. On July 25, 2002 the GSA Federal Technology Service awarded a number of contracts for reverse auction services to various companies (“enablers”) that provide services ranging from conducting the complete auction (“Hosted Services”) to providing enabling software so that the user agency can conduct its own auctions (“Desktop Services”). The enablers that received GSA contracts are listed on the web site.¹⁵⁵

GSA conducted a reverse auction pilot program from May 2000 to May 2001. GSA reports that various government agencies participating in the pilot program realized savings of 12% - 48% through the reverse auction process. For example, the Defense Financing and Accounting Service paid 22 percent, or \$2.1 million less, than normal prices for desktop computers, laptops and printers. The National Institutes of Health (NIH) paid 25 percent, or \$395,000, less than normal prices for utility wipes, a type of cleaning supplies. The Coast Guard paid 22 percent, or \$300,000, less than normal prices for spare parts for HU-25 Falcon jets.

The Deputy Assistant Commissioner for Service Development, GSA Federal Technology Service, Mr. Manny DeVera, is credited with developing “Ten Commandments for Reverse Auctions:”

Reverse Auction ***Ten Commandments***

1. *Link reverse auction strategy to acquisition strategy. When developing the acquisition strategy ask, “Could reverse auctioning apply to this requirement?”*
2. *Follow the Federal Acquisition Regulation. These guiding principles still apply.*¹⁵⁶

¹⁵⁴ - *Electronic Bazaar – Reverse Auctions Save Buyers Time, Money* by Geoff Gauger. Federal Times, November 4, 2002. This article may be accessed at: <http://federaltimes.com/index.php?S=1264522>

¹⁵⁵ - http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_OVERVIEW&contentId=10655

¹⁵⁶ - Grantees are not required to follow the FAR. However, they are required to follow FTA Circular 4220.1E, which would apply to procurements using reverse auctions.

3. *Choose a solid performing enabler. (Enablers are firms that perform reverse auctions.) With the troubles currently being experienced in the digital economy, a few enablers may not be around in the future and could present risks.*
4. *Educate suppliers in advance of conducting a reverse auction. Full service enablers provide this service in their fees.*
5. *Be prepared for publicity and use it to your advantage. Publicity happens because reverse auctions are relatively new and the media, trade associations, senior government officials and others are all carefully watching the government's entry into this new way of doing business. Enablers are also aggressively publicizing their activities.*
6. *Begin with simple requirements and move gradually to more complex ones. The more experience an organization has with conducting auctions, the more complex requirements they can put out for bid.*
7. *Establish the rules of the reverse auction up front. Some examples of these rules are the bid increments to be used, time extensions, logistics and other considerations.*
8. *Conduct a mock auction. The adage "practice makes perfect" is very appropriate here.*
9. *Consider conducting an auction where bidders bid to provide a quantity of a commodity, as opposed to price based bidding. For example, reverse auctions are being conducted where the buyer has a set amount they want to spend, say \$1 million for PCs, and is not focused on the unit cost. In these auctions, bidders base their bids on the number of PCs that they will provide for the \$1 million.*
10. *The Contracting Officer is in control of the reverse auction event at all times.*

FIRSTGOV.gov – The U.S. Government's official web portal is www.firstgov.gov.¹⁵⁷ Inserting "reverse auctions" in the *Search* box will give you access to more than 186 million web pages from federal and state governments where you will find information regarding these agencies' experience with reverse auctions.

Private Industry Experience – The private industry sector has been using reverse auctions since the mid-1990's. A recent white paper presented data indicating that 20 percent of all

¹⁵⁷ - <http://www.firstgov.gov/index.shtml>.

private industry firms may be using on-line auctions (real-time bidding) to procure a portion of their goods and services.¹⁵⁸

A current magazine article discusses the experience of one major private industry player in the reverse auction arena – Sun Microsystems. Sun implemented its *Dynamic Bidding* program in May 2000 with a goal of 20 percent reduction of their targeted budget, and they achieved this in their first pilot auction. It has since been used for more than 100 procurements and covers all the commodities Sun buys. One of the important facets of the Sun method is that the company uses a “best value” approach to source selection with their price auctions. Sun believes its supplier relationships are strategic and it will not switch to an untested company simply to get a lower price. Past performance in areas such as quality, manufacturing flexibility, facility location and engineering support are also considered in the final decision. Sun emphasizes that the reverse auction approach does not replace the strategic relationship between companies. Prices bid are only one factor in the final selection decision process, but the auctions mean that less time is spent on negotiating the price, terms and conditions than was previously the case. “The end result is that it takes Sun an hour to find the true market price, eliminating weeks or even months of negotiating back and forth. It has also resulted in significant bottom-line savings for Sun. They used this process on \$1 billion of their direct spend in fiscal year 2001, and have raised the goal for this fiscal year.”¹⁵⁹

A recent article in an E-business publication suggested a number of areas that might be good candidates for reverse auctions.¹⁶⁰ The author’s recommendations for reverse auctions include:

- *Strategic Relationship is Less Important*
The author believes it is difficult to build cooperative relationships with suppliers through an auction process and thus auctions are more suitable for purchases of off-the-shelf, near-commodity direct materials.
- *Price is Main Decision Factor*
Auctions work best for categories where the main discriminator between suppliers is price.

¹⁵⁸ - *The Strategic Need for Real-Time Competitive Bidding in the Public Sector Procurement Process*, by David C. Wyld and Randall P. Settoon, September 2002, p.18. This paper may be accessed at: http://learningcenter.ariba.com/wp_resource.cfm.

¹⁵⁹ - *Reverse Auctions – Strategies and Lessons Learned from a Successful Implementation* by Gillian Verga, Jan 2002. This article may be accessed at: www.apics.org.

¹⁶⁰ - *When to Use an Auction* by Ed Goetting, September 4, 2002. This article may be accessed at: www.line56.com/print/default.asp?ArticleID=3983

- *Many Qualified Suppliers*
Auctions need adequate competition to succeed. Where there is limited competition because of a scarcity of suppliers, a commitment of supply is more important than any incremental price savings that could be achieved through an auction.
- *Low to Medium Strategic Importance*
The most strategic categories should not be subject to a stand-alone auction. This would include components critical to the company's end product. In these cases the auction, if conducted, should be combined with some sort of face-to-face discussions with key suppliers.
- *Purchases Can be "Lotted"*
It may be cumbersome to run individual auctions for each of many line items. Line items can be bundled into "lots" and suppliers will be required to bid on all the parts in that lot or none. This concept of "lotting" works well with office products.
- *Benchmarks*
When a company is satisfied with a current supplier but feels a need to test the market to ensure they are receiving a competitive price, they may do this through an auction. Potential suppliers can be required to respond to an RFP in order to qualify for the auction. The key is to adequately document one's service, delivery, payment terms and other "non price" requirements up-front to ensure that suppliers are bidding on an apples-to-apples basis.

Transit Agency Experience – Transit Agency experience with reverse auctions has been extremely limited in comparison to both the private sector and the Federal government. The Los Angeles County Metropolitan Transit Authority (LACMTA) has used this process successfully on a limited basis but does not feel it has significant potential for their needs.¹⁶¹ LACMTA believes it can work well for common materials but may be inconsistent with good long-term partnership relationships with suppliers. For example, where there is a need for technical support or for quick reaction time in order to meet critical agency needs, the auction process does not lend itself to the kind of agency/supplier relationships that are required for long-term mission success. But LACMTA believes that if price is the only consideration, and supplier partnerships for the commodity also is not a consideration, then reverse auctioning can work well.

The Southeastern Pennsylvania Transportation Authority (SEPTA) conducted a pilot program to test the process on a procurement of fluorescent tubes and they were successful. But they also do not feel that their agency will adopt this technique to any significant degree. One of the lessons

¹⁶¹ - For information re LAMTA call the Director of Purchasing at 213-922-7210.

learned by SEPTA is the criticality and difficulty of informing potential bidders of the auction and getting them prepared to bid.¹⁶²

The Houston Metropolitan Transit Authority (MTA) is considering the use of a reverse auction for furniture.¹⁶³

¹⁶² - For information about SEPTA's pilot program, call 215-580-8251.

¹⁶³ - For information about Houston MTA, call Paul Como at: 713-739-4803.

Chapter 5

5 - Award of Contracts

5.0 Overview (1/98)

5.1 Responsibility of Contractor (5/98)

5.1.1 General Standards of Responsibility (5/98)

5.1.2 Special Standards of Responsibility (5/98)

5.1.3 Obtaining Information for Determination of Responsibility (5/98)

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5.2 Cost and Price Analysis (6/03)

5.3 Award Procedures (5/98)

5.3.1 Public Announcements of Contract Awards (5/98)

5.3.2 Debriefing of Offerors (4/05)

5.4 Documentation of Procurement Action (5/98)

5.4.1 Sealed Bid Procurements (5/98)

5.4.1.1 Abstract of Bids (5/98)

5.4.1.2 Documentation of Award Decision (5/98)

5.4.2 Negotiated Procurements (5/98)

5.4.2.1 File Documentation of Selection Decision (5/98)

5.4.2.2 Pre-Negotiation Plan (5/98)

5.4.2.3 Memorandum of Negotiations (5/98)

5.0 OVERVIEW

This chapter concerns the more important procedures and documentation requirements which are closest to and relate most directly to the time of the actual contract award. These are the final steps in the long process leading to the selection decision, the negotiation of a contract, the signing of the contract, and the notifications to unsuccessful offerors and the general public of who the winner is.

5.1 RESPONSIBILITY OF CONTRACTOR

REQUIREMENT

Paragraph 7.h. of FTA Circular 4220.1E states:

Awards to Responsible Contractors. Grantees shall make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration shall be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

Paragraph 7.i. of FTA Circular 4220.1E states:

Written Record of Procurement History. Grantees shall maintain records detailing the history of a procurement. At a minimum, these records shall include: ...(3) reasons for contractor selection or rejection.

DEFINITION

Responsible - If the lowest responsive bidder possesses, at the time of contract award, the ability to perform successfully and a willingness to comply with the terms and conditions of a proposed contract, the bidder is considered responsible.

DISCUSSION

Responsibility is a procurement issue determined after receipt of bids or proposals and prior to the time of contract award. The contractor must be considered responsible to be awarded a contract, regardless of the procurement method used to select that contractor (sealed bidding, competitive proposal, or sole source). For example, suppose your procurement procedures allow for award of a contract to a sole source, provided there is sufficient justification. As it turns out, the sole source chosen has been debarred by the Department of the Army. If Federal funds are involved, a contract cannot be awarded to the sole source because the contractor is not considered responsible.¹ Your analysis of the factors involved in making a determination of responsibility involves a great deal of subjectivity -- after all, you are grading a firm's "ability" to do a job.

¹ - If Federal funds are not involved check local and state laws to determine whether a contractor that has been debarred by an agency of the Federal government may be considered "responsible."

You may have a procurement where it is necessary to determine the responsibility of a critical subcontractor in order for you to make a positive determination about the prime contractor's responsibility.² If that is necessary, you may use the same standards in determining the responsibility of the subcontractor as you would in determining the responsibility of the prime contractor.

5.1.1 General Standards of Responsibility

To be determined responsible, a prospective contractor must meet all of the following requirements:

- (a) Financial resources adequate to perform the contract, or the ability to obtain them.
- (b) Ability to meet the required delivery or performance schedule, taking into consideration all existing commercial and governmental business commitments.
- (c) A satisfactory performance record;
- (d) A satisfactory record of integrity and business ethics;
- (e) The necessary organization, experience, accounting, and operational controls, and technical skills, or the ability to obtain them;
- (f) Compliance with applicable licensing and tax laws and regulations;
- (g) The necessary production, construction, and technical equipment and facilities, or the ability to obtain them;
- (h) Compliance with Affirmative Action and Disadvantaged Business Program requirements; and
- (i) Other qualifications and eligibility criteria necessary to receive an award under applicable laws and regulations.

5.1.2 Special Standards of Responsibility

You may have a particular procurement or class of procurements which, due to the complexity of the products being acquired, require that prospective contractors meet special standards of responsibility. These procurements will require that contractors have specialized expertise or

² - Normally, the prime contractor is responsible for determining the responsibility of its subcontractors. However, as indicated in FAR 9.104-4, it may be necessary for you as the procurement official to determine a prospective subcontractor's responsibility such as when the prospective contract involves urgent requirements or substantial subcontracting.

facilities in order to perform the contract adequately. These special standards of responsibility must be set forth in the solicitation. Failure to meet the special standards will disqualify a bidder from consideration for award. An example of a Special Responsibility Standard would be the Special Quality Assurance requirement concerning measuring and testing facilities and manufacturing controls which must be met by prospective bus manufacturers.³

5.1.3 Obtaining Information for Determination of Responsibility

Before making a determination of responsibility, you must possess or obtain information sufficient to satisfy yourself that a prospective contractor meets the applicable standards and requirements for responsibility set forth in this section. Appendix B.11 represents an example of a "Responsibility Questionnaire" used by a major transit authority to obtain information from bidders which is necessary in order to make a determination of responsibility.

Sources of information available to you for your determinations could include:

- (a) General Services Administration publication titled List of Parties Excluded from Federal Procurement or Nonprocurement Programs;
- (b) Records and experience data, including verifiable knowledge of your agency's personnel;
- (c) Information supplied by the prospective contractor, including bid or proposal information, questionnaire replies, financial data, information on production equipment, and personnel information;
- (d) Pre-award survey reports; and
- (e) Other sources, such as publications, suppliers, subcontractors, and customers of the prospective contractor, financial institutions, government agencies, and business and trade associations.

5.1.4 Determination and Documentation

The FTA Circular 4220.1E Paragraph 7(i) requires grantees to maintain a written record of the procurement history, including "reasons for contractor selection or rejection." While the award of a contract itself can in some instances (e.g. small purchases) be considered implicit affirmation that a contractor has been determined to be responsible, where appropriate the written record should state the specific basis for a responsibility determination.

³ - American Public Transit Association (APTA) *Standard Bus Procurement Guidelines*, Section 1.1.4.3.1 *Qualification Requirements* (III), January 1997.

When an offer on which an award would otherwise be made is rejected because the prospective contractor is found to be nonresponsible, the Contracting Officer should make, sign, and place in the contract file a determination of nonresponsibility which states the basis for the determination.

Documents and reports supporting a determination of responsibility or nonresponsibility, including any pre-award survey reports, should be included in the contract file.

Discussions with Offeror - In doing the research necessary to make a responsibility determination, you are free to discuss with the bidder/offeror any concerns which you may have regarding the bidder's/offeror's responsibility. You are free to discuss issues of "responsibility" with the bidder, unlike issues regarding "responsiveness," which cannot be discussed with bidders (See BPPM Section 4.4.4).

5.2 COST AND PRICE ANALYSIS

REQUIREMENT

Paragraph 10 of FTA Circular 4220.1E requires a cost or price analysis for every procurement action:

Grantees must perform a cost or price analysis in connection with every procurement action, including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, grantees must make independent estimates before receiving bids or proposals.

(a) Cost Analysis - A cost analysis must be performed when the offeror is required to submit the elements (i.e., Labor Hours, Overhead, Materials, etc.) of the estimated cost; e.g., under professional consulting and architectural and engineering services contracts.

A cost analysis will be necessary whenever adequate price competition is lacking and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalogue or market price of a commercial product sold in substantial quantities to the general public or on the basis of prices set by law or regulation.

(b) Price Analysis - A price analysis may be used in all other instances to determine the reasonableness of the proposed contract price.

(c) Profit - Grantees will negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed.

(d) Federal Cost Principles - Costs or prices based on estimated costs for contracts under grants will be allowable only to the extent that costs incurred or cost estimates included in negotiated prices are consistent with Federal cost principles. Grantees may reference their own cost principles that comply with applicable Federal cost principles.

DEFINITIONS

Cost Analysis - A cost analysis entails the review and evaluation of the separate cost elements and the proposed profit of an offeror's cost or pricing data and the judgmental factors applied in estimating the costs. A cost analysis is generally conducted to form an opinion on the degree to which the proposed cost, including profit, represents what the performance of the contract should cost, assuming reasonable economy and efficiency.

Price Analysis - A price analysis involves examining and evaluating a proposed price without evaluating its separate cost and profit elements. Price analysis is based essentially on data that is verifiable independently from the offeror's data.

Federal Cost Principles - It is important to understand that grant funds may only be used by the grantee to pay for *allowable costs when the contract is a cost-plus-fixed-fee contract or when a fixed price contract is being negotiated on the basis of cost estimates submitted by the contractor*. The term *allowable cost* is defined in 48 CFR 31.201-2. (48 CFR 31 is Part 31 of the Federal Acquisition Regulation (FAR). The common grant rule, found in 49 CFR 18.22 - *Allowable Costs*, requires that the cost principles found in the FAR (48 CFR 31) be used to determine allowable costs for commercial ("for-profit") organizations. The FAR may be accessed on the Internet.⁴ Grantees may use their own cost principles *if they are consistent with the Federal cost principles*. This requirement to use the FAR cost principles affects the allowability of costs not only on cost-reimbursement contracts but also when evaluating and negotiating cost elements in order to establish a price on a fixed-price contract. Thus, whenever you do a *cost analysis* of an offeror's cost/price proposal you will need to use the Federal cost principles (or principles consistent with them) to determine what costs are acceptable.

DISCUSSION

In general, the purpose of cost or price analysis is to ensure that you do not pay unreasonably high prices. However, prices which are unreasonably low can also be detrimental to your agency's program if they prove to be an indication that the offeror has made a mistake or doesn't understand the work to be performed. It is important to do a cost-realism analysis of cost proposals submitted for cost reimbursement contracts that are

⁴ - Internet address for Code of Federal Regulations is: <http://www.arnet.gov/far/>

to be competitively awarded in order to determine the realism of the various proposals and not permit a “buy in” (an unrealistically low estimated contract cost and fee) that will eventually result in a substantial cost overrun.

Before issuing a solicitation, develop an independent estimate of the proper price level for the supplies or services to be purchased. The estimate can range from a simple budgetary estimate to a complex estimate based on inspection of the product itself and review of such items as drawings, specifications, and prior data (such as cost data from prior procurements). The estimate can then assist in a determination of reasonableness or unreasonableness of price and/or the estimated costs to do the job. If you will be requesting a proposal with a breakdown of estimated costs, be sure to require a format for the cost proposal that will allow you to compare the cost elements proposed with those that were developed for your in-house estimate.

Best Practices

The Federal Acquisition Regulation (FAR), Subpart 15.404-1(a)(7) – *Proposal Analysis Techniques*, references a five-volume set of *Contract Pricing Reference Guides* to guide pricing and negotiation personnel. These guides are informational and not directive. They are available via the Internet.⁵

The National Transit Institute (NTI) at Rutgers University offers a course for FTA grantees titled “Cost and Price Analysis and Contract Negotiation.” It is a four-day course offered free of charge to FTA grantees but it is also open to the public for a fee.⁶ Part of the NTI course manual material includes a *Pricing Guide for FTA Grantees* that is based in part on the Defense Contract Audit Agency’s (DCAA) *Pricing Manual*. The *Pricing Guide for FTA Grantees* is now available on line at http://www.fta.dot.gov/ftahelp/Price_Guide.doc, and grantees are urged to utilize this resource.

Price Analysis –

The accepted forms of *price analysis* techniques discussed in the *Pricing Guide for FTA Grantees* are:

1. Adequate price competition;
2. Prices set by law or regulation;
3. Established catalog prices and market prices;
4. Comparison to previous purchases;

⁵ - <http://www.acq.osd.mil/dpap/contractpricing/index.htm>

⁶ - Contact NTI at (732) 932-1700 or online at www.ntionline.com

5. Comparison to a valid grantee independent estimate; and
6. Value analysis.

(1) *Adequate price competition* requires the following conditions:

- At least two responsible offerors respond to a solicitation.
- Each offeror must be able to satisfy the requirements of the solicitation.
- The offerors must independently contend for the contract that is to be awarded to the responsive and responsible offeror submitting the lowest evaluated price.
- Each offeror must submit priced offers responsive to the expressed requirements of the solicitation.

If the four conditions above are met, price competition is adequate unless:

- The solicitation was made under conditions that unreasonably deny one or more known and qualified offerors an opportunity to compete.
- The low competitor has such an advantage over the competitors that it is practically immune to the stimulus of competition.
- The lowest final price is not reasonable, and this finding can be supported by facts.

(2) *Prices set by law or regulation* are fair and reasonable. Grantees should acquire a copy of the rate schedules set by the applicable law or regulation. Once these schedules are obtained, verify that they apply to your situation and that you area being charged the correct price. For utility contracts, this policy applies only to prices prescribed by an effective, independent regulatory body.

(3) *Established catalog prices* require the following conditions:

- Established catalog prices exist.
- The items are commercial in nature.
- They are sold in substantial quantities.
- They are sold to the general public.

The idea behind catalog prices is that a commercial demand exists and suppliers have been developed to meet that demand. You are trying to ensure that you are getting at least the same price as other buyers in the market for these items. You need to be sure that the catalog is not simply an internal pricing document. Request a copy of the document or at least the page on which the price appears.

Established market prices are based on the same principle as catalog prices except there is no catalog. A market price is a current price established in the usual or ordinary course of business between buyers and sellers free to bargain. These prices must be verified by buyers

and sellers who are independent of the offeror. If you do not know the names of other commercial buyers and sellers, you may obtain this information from the offeror.

(4) *Comparison to previous purchases* –

Changes in quantity, quality, delivery schedules, the economy, and inclusion of non-recurring costs such as design, capital equipment, etc. can cause price variations. Each differing situation must be analyzed. Also ensure that the previous price was fair and reasonable. This determination must be based upon a physical review of the documentation contained in the previous files.

(5) *Comparison to a valid grantee independent estimate* –

Verify the facts, assumptions, and judgments used by your estimator. Have the estimator give you the method and data used in developing the estimate. For example, did prices come from current catalogs or industry standards? Be sure that you feel comfortable with the estimate before relying on it as a basis for determining a price to be fair and reasonable.

(6) *Value analysis* requires you to look at the item and the function it performs so you can determine its worth. The decision of price reasonableness remains with the contracting officer; however, the requiring activity should always be consulted for their expertise, and they should participate in making the decision.

Cost Analysis –

Cost analysis is the review and evaluation of the separate cost elements and profit in an offeror's or contractor's proposal and the application of judgment to determine how well the proposed costs represent what the cost of the contract should be, assuming reasonable economy and efficiency.

Cost realism analysis is the process of independently reviewing and evaluating specific elements of each offeror's proposed cost estimate to determine whether the proposed cost elements are realistic for the work to be performed; reflect a clear understanding of the requirements; and are consistent with the unique methods of performance and materials described in the offeror's technical proposal. Cost realism analyses should be performed on competitively awarded cost-reimbursement contracts to determine the probable cost of performance for each offeror. The probable cost may differ from the proposed cost and should reflect the grantee's best estimate of the cost of any contract that is most likely to result from the offeror's proposal. The probable cost is determined by adjusting each offeror's proposed cost to reflect any additions or reductions in cost elements to realistic levels based on the results of the cost realism analysis. *The probable cost should be used for purposes of evaluation to determine the best value.*

Cost proposals and *cost analysis* are typically associated with negotiated procurements, including modifications and change orders to existing contracts. In order to facilitate the evaluation of contractor cost proposals, it is usually helpful to prescribe the format of the cost proposals in your solicitation. This will ensure that all offerors submit proposals that can be easily compared to one another on a cost element basis (if the procurement is competitive), and it will facilitate your evaluation of proposals against the in-house estimate and for purposes of a cost realism analysis.

A *technical analysis* of the proposed types and quantities of materials, labor, special tooling, equipment, travel requirements, and other direct costs will usually be necessary. These analyses will have to be performed by personnel specialized in engineering, science or other disciplines. At a minimum, the technical analysis should examine the types and quantities of material proposed and the need for the types and quantities of labor hours and the labor mix.

Advisory audit assistance is strongly recommended whenever the value of an offeror's proposal is significant and the costs of obtaining the audit assistance do not outweigh the potential benefits. If the offeror has performed work for Federal agencies, there may very well be a Federal audit agency, such as DCAA, that can be contacted by phone for the latest available audit information regarding direct labor rates, indirect cost rates, and other pertinent costs. If there are no Federal auditors, you should consider contacting the independent CPA firm that audits and certified the contractor's latest annual financial statements. Oftentimes these CPA firms can provide audit assistance. If you do request an advisory pricing audit for the purpose of conducting negotiations, be sure to inform the auditor that the FAR Part 31 cost principles must be used to determine allowable costs.⁷ And also be sure to evaluate the proposed costs of any subcontractor that has submitted cost data to the prime contractor.

Profit/Fee - To negotiate a fair and reasonable profit, consideration should be given to:

- The complexity of the work to be performed,
- The risk borne by the contractor,
- The contractor's investment,
- The amount of subcontracting,
- The quality of its record of past performance, and
- Industry profit rates in the surrounding geographical area for similar work.

Negotiation and Documentation –

Pre-negotiation Memorandum - Some form of pre-negotiation document should be prepared for all negotiations. The extent of detail and the content will depend on the magnitude and

⁷ - FTA C4220.1E paragraph 10.d.

complexity of the negotiation. *There are a number of important reasons for grantees to make use of a pre-negotiation memorandum:*

1. It will facilitate *effective cost and/or price analysis*. A lack of effective cost or price analysis has been one of the most common problem areas uncovered by FTA Procurement System Reviews (PSRs).⁸
2. It will *encourage negotiations* with the offeror by revealing those areas where the costs or price needs to be questioned and discussed with the offeror. Here again the PSRs have shown that many grantees simply accept contractor proposals without negotiations.
3. It will document the file with an *explanation of the basis for the contract price* and it can be used to *provide a history of the procurement*. This failure to document how the contract price was determined and to provide a history of the procurement is yet another problem area disclosed by PSRs.⁹
4. It will afford the grantee an *excellent method of supervisory/management review and approval of the contract negotiator's strategy for the negotiations*. This would include the concurrence of the technical personnel (user office) in that strategy, which is an important point if the negotiations are to be successful and all of the agency's goals are to be met.

A sample PM is included in the *Pricing Guide for FTA Grantees* and is reproduced below.¹⁰ This PM can be tailored to meet any negotiation scenario that you might have, from large competitive procurements to the negotiation of contract change orders or modifications.

PRE-NEGOTIATION MEMORANDUM (PM) FORMAT

1. Grantee Contracting Activity _____ 2. Date _____
3. RFP/IFB or Contract Number _____
4. Modification Number _____
5. This acquisition is being accomplished by (check one)
 - Full and Open Competition _____
 - Other than Full and Open Competition _____

⁸ - FTA C4220.1E paragraph 10.

⁹ - FTA C4220.1E paragraph 7.i.

¹⁰ - APPENDIX C: Negotiation & Documentation.

State reasons for other than full and open competition.

6. Contract Type _____

7. Offeror's (Name, Address) _____

8. Business Size and Type (Small, Large, DBE, WOB) _____

9. Offeror's Proposed Amount _____

10. Procurement Description (briefly describe the procurement)

11. Pricing Structure Prenegotiation Objective

Cost \$ _____

Fee/Profit (_____%) \$ _____

Total Price \$ _____

12. Delivery or Performance Period _____

13. Points of Contact for this Document (name and phone number)

a. Contracts _____

b. Technical _____

PART A INTRODUCTION

1. In this paragraph, describe the acquisition, including a brief history of the requirement, the place of performance, and any other pertinent information. Questions to be answered include: What is it? Why is it needed? What is it for? Quantity? If this is a contract modification, what events or circumstances contributed to the needed change? State the Grantee's estimated amount of the proposed acquisition.

2. In this paragraph, address the extent of competition under the acquisition. Is the acquisition being accomplished under full and open competition? If other than full and open, include a statement regarding sole source approval. Additionally, was the requirement publicized in accordance with Grantee's procedures? (If not, cite the exception.) How many requests for solicitations were received? How many offers were received?

3. In this paragraph, include your planned negotiation schedule, and identification of the Grantee's negotiating team members by name and position.

PART B **SPECIAL FEATURES, REQUIREMENTS AND**
PRENEGOTIATION COMPLIANCE

The following items should be addressed for all negotiated acquisitions:

1. The use of sealed bid procedures is not appropriate for this acquisition because

2. The prospective contractor(s) has/have been determined to be responsible technically and are financially stable. Yes _____ No _____
Major subcontractors (list their names) have been reviewed and found to be technically responsible and are financially stable.

3. The prospective contractor(s) is/are not on the list of "Parties Excluded from Procurement and Nonprocurement Programs."

(The following items should be included when applicable:)

4. Pre-contract cost in the amount of \$ _____ for the period _____ were approved by (name of individual).
5. Authority to enter into a letter contract was approved by (name of individual).
6. Are optional quantities being proposed and are they being evaluated as part of the award decision? ¹¹
7. The offeror has submitted "Cost or Pricing Data." Yes _____ No _____
8. "Cost or Pricing Data" for major subcontract(s) has been submitted.
Yes _____ No _____
9. Written waiver of the audit was granted by (name of individual).

¹¹ - FTA C4220.1E paragraph 9.i. (1).

10. The offeror(s) has/have an adequate accounting system as determined by (name of individual). (Cost reimbursement contracts, fixed price with price redetermination, incentive types and contracts containing progress payment provisions.)
11. EEO compliance has been requested or obtained. Yes _____ No _____
12. In the event Grantee property is to be furnished to the offeror, has the Contracting Officer determined that the contractor has an acceptable property control system? Grantee furnished equipment estimated value \$_____ consisting mainly of _____ . Grantee furnished material estimated value \$_____ consisting mainly of _____ .
13. Address any deviations, special clauses or conditions anticipated.
14. The offeror has _____ has not _____ submitted a subcontracting plan. Briefly discuss the subcontracting plan if applicable.

PART C COST AND PROFIT/FEE ANALYSIS

In this Part C, compare, in summary, the offeror's proposal, the audit and/or other recommendations, and the Grantee's Prenegotiation objective. For example:

<u>Cost Element</u>	<u>Offeror's Proposal</u>	<u>Audit/Technical Recommendation *</u>	<u>Prenegotiation Objective</u>	<u>Numbered Notes **</u>
Direct Labor	\$	\$	\$	(1)
Labor Overhead	\$	\$	\$	(2)
Direct Material	\$	\$	\$	(3)
Mat'l Overhead	\$	\$	\$	(2)
Other Direct Costs	\$	\$	\$	(4)
Subtotal	\$	\$	\$	
G&A	\$	\$	\$	(2)
Subtotal	\$	\$	\$	
Profit/Fee	\$	\$	\$	(5)
Total	\$	\$	\$	(6)

The above is an example of the various cost elements that should be reviewed when analyzing a proposal. These elements are not to be interpreted as all encompassing because the cost elements of each offeror may be different.

***Audit/Technical Recommended:**

In general, an audit report will not include recommendations on direct labor hours or the validity of material and other direct costs. The technical evaluation/analysis generally will not include rate recommendations. Therefore, this column should be a combination of your two reports (audit and technical). In cases where you have not obtained an audit, you need only reflect the "Offeror's Proposal" and "Prenegotiation Objective" columns. The technical evaluation results can be addressed in your discussions, and would normally be used in the establishment of your objective.

For your information, "Technical Analysis" is defined as the examination and evaluation by personnel having specialized knowledge, skills, experience, or capability in engineering, science, or management of proposed quantities and kinds of materials, labor, processes, special tooling, facilities, and associated factors which have been set forth in a proposal. In order to determine and report on the need for the reasonableness of the proposed resources assuming reasonable economy and efficiency, special knowledge is required. Therefore, a technical evaluation that doesn't address individual elements of cost (i.e., labor categories, labor hours, material, other direct costs, etc.), but merely states that the proposal is acceptable, is not considered adequate.

****Numbered Notes:**

(1) Direct Labor

Compare, in detailed discussion, the proposal, the audit and/or technical recommendations, and the renegotiation objective direct labor categories, hours and rates. For example:

<u>Labor Category</u>	<u>Offeror's Proposal</u>			<u>Audit/Technical Recommendation</u>			<u>Prenegotiation Objective</u>		
	<u>Hours</u>	<u>Rate</u>	<u>Amt.</u>	<u>Hours</u>	<u>Rate</u>	<u>Amt.</u>	<u>Hours</u>	<u>Rate</u>	<u>Amt.</u>
Engineer	xx	\$	\$	xx	\$	\$	xx	\$	\$
Programmer	xx	\$	\$	xx	\$	\$	xx	\$	\$
Clerical	xx	\$	\$	xx	\$	\$	xx	\$	\$
Total			\$			\$			\$

Offeror's Proposal

First subparagraph. Summarize the offeror's rationale for the proposed labor categories, hours and rates. Questions you can consider are: Are the proposed labor rates the result of a negotiated forward pricing rate agreement (FPRA)? Are they unaudited bidding rates that have been approved at a corporate level? Are they current actual rates for specific employees or a composite rate for personnel under each labor category? If the labor rates are developed on a specific base rate, what escalation factor (if any), has the offeror applied to the base rate? Is that a reasonable factor? Are the proposed labor categories and hours based upon the offeror's

previous experience? What evidence of historically incurred hours has the offeror provided? Or, is the proposal an engineering estimate of the projected labor and expertise to accomplish the requirements of the acquisition? Do the proposed hours correspond to the performance period?

Audit/Technical Recommendation

Second subparagraph. Summarize the basis of the audit or other recommendations. How have the recommended labor rates been developed? For instance, audit reports generally use the Data Resources Indices in developing labor rate recommendations. This has been proven to be a reliable *escalation predictor* for labor rates and material items. If you have an audit report, the information for this subparagraph will be within the audit report. In the event you have not obtained an audit, it is advisable to contact your state audit office and request current rate/escalation recommendations. The recommendations of the technical evaluation should also be addressed under this subparagraph. It is important that the evaluation includes complete and factual support for any exceptions taken to proposed direct labor categories and hours.

Prenegotiation Objective

Third subparagraph. Discuss the Grantee's negotiation objective. What is it based upon? Did you rely on the audit recommendations? Did you rely on the technical evaluation in development of your objective labor categories and hours? An excellent resource for additional considerations during analysis of a proposal is the Armed Services Pricing Manual, ASPM. Additionally, the evaluation considerations in evaluating manufacturing labor versus engineering labor differ greatly. In a manufacturing environment, other considerations may include application of learning curve theory, efficiency factors, recurring versus non-recurring labor, etc.

It is your responsibility to establish a reasonable objective after considering and analyzing all of the available data. Statements to the effect, " THE OFFEROR HAS PROPOSED THE SAME RATES ON OTHER CONTRACTS," are not adequate without discussion of how price reasonableness was determined under the other contracts.

(2) Labor Overhead, Material Overhead, and G&A

Compare, in detailed discussion, the offeror's proposal, the audit and/or other recommendations, and the Grantee's objective for labor overhead, material overhead, and G&A. For example:

<u>Category</u>	<u>Offeror's Proposal</u>		<u>Audit/Technical Recommendation</u>		<u>Prenegotiation Objective</u>	
	<u>Rate</u>	<u>Amt.</u>	<u>Rate</u>	<u>Amt.</u>	<u>Rate</u>	<u>Amt.</u>
Labor Overhead	x%	\$	x%	\$	x%	\$
Material Overhead	x%	\$	x%	\$	x%	\$
G&A	x%	\$	x%	\$	x%	\$

Offeror's Proposal

First subparagraph. Describe how the offeror developed the proposed indirect rates. Does a forward pricing rate agreement exist? If so, what is the period covered by the agreement? This information should be provided by the offeror.

Audit/Other Recommendation

Second subparagraph. Explain what the audit's recommendations are based upon. This may include exception taken to some cost elements within the overhead pool, such as fringe benefits, unemployment taxes, rent, depreciation, etc. This information should be reflected in the audit report. If you do not obtain an audit report, you can request current rate recommendations and/or historical actual rates from your state audit office. Comparing the offeror's proposed rates to the actual rates can provide a good measure on how accurate the offeror's proposed rates have been.

Pre negotiation Objective

Third paragraph. Address how you developed the Grantee's pre negotiation objective, and upon what information you relied. Are your objective rates based upon recommendations? Occasionally, you may experience a situation where you haven't obtained an audit report, and your state audit office has no information on a specific offeror. In such cases, it may be to your advantage to request an audit of the offeror's rates. Absent this information, you will need to evaluate the offeror's proposed rates in detail (i.e., cost elements included in the indirect pools) for allowability and allocability. Comparing one offeror's rates with those of another offeror's is not an acceptable method in any case. Also, comparing this year's proposed rates to last year's rates is not a basis for establishing reasonableness of the currently proposed rate.

(3) Direct Material

Provide a detailed breakdown and compare, in detailed discussions, the offeror's material quantities and unit prices.

<u>Material</u>	<u>Offeror's Proposal</u>			<u>Technical/Audit Recommendation</u>			<u>Pre negotiation Objective</u>		
	Qty	UP	Amt	Qty	UP	Amt	Qty	UP	Amt
Pwr Sup	xx	\$	\$	xx	\$	\$	xx	\$	\$
CM Chips	xx	\$	\$	xx	\$	\$	xx	\$	\$
Wire	xx	\$	\$	xx	\$	\$	xx	\$	\$
Other	xx	\$	\$	xx	\$	\$	xx	\$	\$
Total			\$			\$			\$

Offeror's Proposal

First subparagraph. Address the basis of the offeror's proposed direct material (engineering estimate? based upon history? etc.) and costs associated with the material (catalog prices? oral quotes? written quotes? historical prices escalated by \$? competitive?, etc.) Will there be any scrap, attrition or variance factors to consider? If applicable, has the offeror included an analysis for large dollar items? Is the analysis meaningful?

Audit/Technical Recommendation

Second subparagraph. Address the audit/technical recommendations. Has the auditor/originator taken exception to any of the proposed material items, quantities or associated prices? Have exceptions been adequately supported?

Prenegotiation Objective

Third subparagraph. Support the Grantee's prenegotiation objective. If you have taken exception to any material items and/or quantities, what information have you relied upon to reach your conclusions? If you have taken exception to any pricing aspects of the offeror's proposal, explain fully how you arrived at your objective. In cases where you have no audit report, the importance of a thorough technical evaluation is increased. You must make a determination of price reasonableness for the direct material items. When challenging a cost, explain the basis for your position. "Appears too high," without rationale, is not sufficient.

(4) Other Direct Costs (ODC)

Compare, in detail discussions, the offeror's proposal, the audit and/or technical recommendation, and the prenegotiation objective for other direct costs. For example:

<u>Cost Element</u>	<u>Offeror's Proposal</u>	<u>Audit/Technical Recommendation</u>	<u>Prenegotiation Objective</u>
Computer Support	\$	\$	\$
Freight	\$	\$	\$
Air Travel	\$	\$	\$
Per Diem	\$	\$	\$
Consultant	\$	\$	\$
Total ODC	\$	\$	\$

Offeror's Proposal

First subparagraph. Summarize the offeror's rationale for proposing the various expenses. The elements above are examples of the types of costs generally included as other direct costs (ODC).

Technical/Audit Recommendation

Second subparagraph. Summarize the audit and/or technical recommendations. Address all the items included under this element. Any exceptions taken must be fully explained.

Prenegotiation Objective

Third paragraph. Provide an analysis of the items included under this cost element. For instance, are the number of trips scheduled considered reasonable by audit or your technical evaluation? Are the costs per trip reasonable?

You can check air travel rates with commercial airlines. How do the offeror's proposed costs compare with previous history? Did the contractor apply an escalation factor? Is it reasonable? In your analysis, you may need to show a lower level breakdown (i.e., a breakdown of the number and location of proposed trips).

(5) Profit/Fee Analysis

Provide a summary that compares the offeror's proposal and the Grantee's prenegotiation objective. For example:

<u>Offeror's Proposal</u>		<u>Prenegotiation Objective</u>	
Rate	Amt	Rate	Amt
xx%	\$	xx%	\$

Offeror's Proposal

First subparagraph. State the offeror's proposed profit/fee rate, that amount, and any other information provided by the offeror to support the proposed rate.

Prenegotiation Objective

Second subparagraph. Address the Grantee's prenegotiation objective profit/fee rate, which should be based upon application of your structured approach.

- Structured approaches for determining profit or fee prenegotiation objectives provide a discipline for ensuring that all relevant factors are considered.
 - Grantees should use a structured approach for determining the profit or fee objective in those acquisitions that require cost analysis; and
 - May prescribe specific exemptions for situations in which mandatory use of a structured approach would be clearly inappropriate.

- Profit or fee prenegotiation objectives do not necessarily represent net income to contractors. Rather, they represent that element of the potential total remuneration that contractors may receive for contract performance over and above allowable costs. This potential remuneration element and the Grantee's estimate of allowable costs to be incurred in contract performance together equal the Grantee's total prenegotiation objective. Just as actual costs may vary from estimated costs, the contractor's actual realized profit or fee may vary from negotiated profit or fee, because of such factors as efficiency of performance, incurrence of costs the Grantee does not recognize as allowable and contract type.

It is in the Grantee's interest to offer contractors opportunities for financial rewards sufficient to (1) stimulate efficient contract performance, and (2) attract the best capabilities of qualified large and small business concerns to Grantee contracts.

Both the Grantee and contractor should be concerned with profit as a motivator of efficient and effective contract performance. Negotiations aimed merely at reducing prices by reducing profit, without proper recognition of the function of the profit, are not in the Grantee's interest.

PART D TYPE OF CONTRACT CONTEMPLATED

Explain the type of contract contemplated and the rationale for selection.¹² If this prenegotiation memorandum is being written for a modification to an existing contract, you must also address the contract type.

PART E MAJOR DIFFERENCES

Identify any anticipated problem areas, exceptions taken by the offeror(s) to the solicitation terms and conditions, or major differences which may interfere with negotiations, and your intended negotiation strategy.

PART F NEGOTIATION APPROVAL SOUGHT

Give your specific recommendation similar to the following:

"Approval of this Pre-Negotiation Memorandum is recommended based upon the information set forth herein and authority to negotiate and enter into a contract is requested. It is considered the opinion of the negotiator that the Grantee's prenegotiation objectives are realistic and can be achieved."

¹² - FTA C4220.1E paragraph 7.i.(2).

Prepared by: _____ Date: _____

(Signature and Title)

Reviewed by: _____ Date: _____

(Signature and Title)

Approved by: _____ Date: _____

(Name and Title)

My Approval is: (check one) a. Unconditional
 b. Conditional (See attached exceptions.)

5.3 AWARD PROCEDURES

DISCUSSION

Contract awards generally follow one of two procedures:

Offer and Acceptance - When you are fully in agreement with all of the terms and conditions of the offer and you desire to make an immediate contract award, you may wish to use a simple *offer and acceptance* form as the awarding document. All that is required is that you sign the "acceptance" block on the form and issue it to the contractor. The form may reference documents such as the Request For Proposal (RFP), which contain the terms and conditions upon which the offer is based. For an example of an *offer and acceptance* format see Appendix B.7.¹³ This approach may work well if there have been no changes to the terms originally established in the RFP, but where there have been changes, either in the offeror's proposed terms or resulting from negotiations, you may avoid confusion by drafting a *bilateral contract* document which defines the final terms agreed upon.

Bilateral Contract - In many cases there will have been changes to the RFP terms or the proposal terms during the course of discussions and negotiations with the offerors. In such cases you may want to issue a preliminary *notice of award* notifying the successful offeror that it has been selected for award and that an integrated *bilateral contract* document will be forthcoming. This integrated contract would incorporate the final negotiated terms and conditions, including price, specifications, warranty provisions, etc. Having the offeror sign the contract with the final terms and conditions avoids the problem of confusion as to what the final agreement actually was, which could happen if the *offer and acceptance* format were used after revisions were discussed. Offerors should be advised not to start

¹³ - APTA, Standard Bus Procurement Guidelines, January 1997, p. 30.

work until a contract has been signed by both parties. Appendix B.8 contains the Federal contract award form.

5.3.1 Public Announcements of Contract Awards

REQUIREMENT

Paragraph 14 of FTA Circular 4220.1E, *Contract Award Announcement*, states:

If a grantee announces contract awards with respect to any procurement for goods and services (including construction services) having an aggregate value of \$500,000 or more, the grantee shall:

- a. Specify the amount of Federal funds that will be used to finance the acquisition in any announcement of the contract award for such goods and services; and
- b. Express the said amount as a percentage of the total costs of the planned acquisition.

DISCUSSION

Public Announcements - If your agency makes public announcements of its contract awards, and the award has an aggregate value of \$500,000 or more, you are required to comply with the contract award announcement provision noted above. Public announcements may include press releases, announcements in public meetings, Internet postings and publicly released documents.

5.3.2 Debriefing of Offerors

DISCUSSION

Debriefing of unsuccessful offerors can be valuable to both the offerors and the procuring agency. A debriefing can be helpful for a number of reasons:

- **It communicates a sense of fairness and appreciation to offerors who have made sizeable investments of time and resources in preparing bids or proposals for your program.**
- **It may avoid a protest by convincing a disappointed offeror that your agency's decision was carefully made, factually well supported, and the best one for your agency.**

- **Of most importance, it can help offerors improve their future proposals, which is a definite advantage to them and to your agency.**

Best Practices

Time of Debriefing - Most agencies conduct their debriefings after contract award because they feel that evaluation information communicated to an offeror prior to award could encourage a protest or that it might result in an attempt by the unsuccessful offeror to resubmit an improved proposal and delay the selection process. Typically, one of the items addressed in a debriefing is the proposal's strengths and weaknesses in the context of what the transit agency was looking for; this information could be valuable to a competitor in negotiations. On the other hand, some Federal agencies, such as NASA, have had considerable success in avoiding protests by using pre-award debriefings. NASA feels that an in-depth, pre-award debriefing will work to convince an unsuccessful offeror that the Agency chose the best proposal, thus discouraging a protest. In addition, NASA would prefer to deal with a protest, if they are going to get one, before award and not after award, when they would face the risk of having to terminate the contract. Whatever policy your agency chooses to use needs to be carefully coordinated with your written protest procedures, which are discussed in Section 11.1, *Protests*, of the BPPM.¹⁴

Pre-award Debriefing – The timing of the debriefing relative to contract award will affect the nature of the information you can provide to the offeror. If an offeror has been notified that it has been excluded from the competitive range or otherwise excluded from the competition, and the offeror requests a debriefing prior to award, you will have to decide whether to grant the request or delay the debriefing until after contract award. If you decide to grant the request for a pre-award debriefing, you must limit the information disclosed to that offeror's proposal and not disclose any information about the other offerors. To reveal information about other offerors would compromise the integrity of the procurement. Information revealed to an offeror prior to award must be limited to the following:

- The agency's evaluation of the significant strengths and weaknesses of the offeror's proposal in accordance with the evaluation criteria;
- A summary of the reasons for eliminating the offeror from the competition;
- Reasonable responses to relevant questions about whether the evaluation procedures contained in the solicitation and other regulations were followed in eliminating the offeror from the competition.

Pre-award debriefings must not disclose the following:

- The number of offerors;

¹⁴ - The Federal debriefing procedures may be found in the FAR at subpart 15.505 and 15.506.

- The identity of other offerors;
- The content or evaluation of other offerors' proposals.
- The ranking of other offerors;
- Confidential business information of other offerors. See below – *Disclosure of Confidential Information*.

Post-award Debriefing – Remember that the primary objective of the debriefing is to help the offeror improve its chances of success on future proposals, and not to defend the agency's selection decision. In light of this purpose, post-award debriefings may include, *at the agency's discretion*, the following information:

- The agency's evaluation of the significant strengths and weaknesses or deficiencies in the offeror's proposal in accordance with the evaluation criteria;
- Past performance information on the debriefed offeror but *not the names of individuals providing reference information about an offeror's past performance*; ¹⁵
- The overall evaluated cost or price and technical ranking, if applicable, of the successful offeror and the debriefed offeror. Evaluated cost or price would include the agency's estimated cost of correcting defects or weaknesses in the items or services offered;
- A summary of the rationale for the selection decision;
- Reasonable responses to relevant questions about whether the evaluation procedures contained in the solicitation and other regulations were followed.

Post-award debriefings should not include:

- Point-by-point comparisons of the debriefed offeror's proposal with those of other offerors;
- *Specific numerical evaluation scores*. This inevitably leads to having to explain the basis for, and defend, the numbers. It will put the members of the agency's

¹⁵ - As a rule, proposals should not be rejected on the basis of past performance information without allowing the proposer an opportunity to respond to unfavorable references (from inside or outside the agency). To do so would almost certainly be grounds for protest.

evaluation team “on trial” for their scores, and will make no positive contribution to the objectives of the debriefing. It may well contribute to a protest;

- Confidential business information. See below – *Disclosure of Confidential Information*.

Method of Debriefing - Debriefings may be done orally or in writing. If the debriefing is done orally, the contracting officer should conduct the debriefing and control what is being divulged.¹⁶ If the reasons for rejection are highly technical, a subject matter expert may participate on a limited and controlled basis. The more people present, the more difficult to control the flow of information. Disclosure of the identity of evaluators can lead to personal friction and allegations of bias.

Disclosure of Confidential Information - Grantees should consult their individual state laws regarding the disclosure of proprietary information from competitors' proposals. Such information would include:

- Trade secrets;
- Confidential manufacturing processes and techniques;
- Financial or business information that is confidential, such as cost information, profit, overhead rates, etc.

It is suggested that a disclaimer be used in the solicitation to state that information will not be disclosed without prior notice to the offeror and an opportunity (e.g., 10 days) to obtain court protection from disclosure.

In conclusion, the information communicated to the offeror must be of *value* to the offeror. The information must enable the offeror to understand why its proposal was not selected. This type of discussion may require some *general comparison* of the offeror's proposal with the winning proposal in order to communicate the basis on which the selection decision was made, and to meaningfully communicate the weaknesses in the offeror's proposal.

5.4 DOCUMENTATION OF PROCUREMENT ACTIONS

REQUIREMENT

Paragraph 7.i. of FTA Circular 4220.1E requires a written record of the procurement history:
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¹⁶ - If an oral debriefing is conducted, it might be advisable to create a transcript to memorialize what was discussed in the debriefing in the event there is a protest.

Grantees shall maintain records detailing the history of a procurement. At a minimum, these records shall include:

- (1) the rationale for the method of procurement,
- (2) selection of contract type,
- (3) reasons for contractor selection or rejection, and
- (4) the basis for the contract price.

DISCUSSION

Section 2.4.1, *File Documentation*, contains a listing of the various types of contract file documentation which are typically required to document the history of a procurement. Section 9.1, *Documentation of Contract Administration*, contains guidance for documenting contract administration activity.

The purpose of this section is to discuss the documentation requirements which are closest to and relate most directly to the award of the contract. It might be helpful to note that documentation of contract decisions and actions is a perennial problem reported with regularity by review teams doing Procurement System Reviews for FTA's grantee community. These documentation problems are in the very areas of FTA's highest priority concerns, as expressed in Circular 4220.1E, and some are concerned with documentation related to contract awards. The most commonly noticed problems include:

- **No independent cost analysis prior to solicitation,**
- **No cost or price analysis of contractors' proposals,**
- **No documented rationale for the selected contract type,**
- **No documentation for the contractor selection decision,**
- **No documentation describing how the price was determined/negotiated.**

5.4.1 Sealed Bid Procurements

5.4.1.1 Abstract of Bids

Best Practices

At the time of bid opening there should be a public reading of the bids and a recording of them, usually referred to as an *Abstract of Bids*. An example of an abstract is in Appendix B.4 which contains the GSA Forms 1409/1410, *Abstract of Offers*, used in Federal procurements for the recording of bids. Abstracts of bids should be available for public inspection.

5.4.1.2 Documentation of Award Decision

Best Practices

A written record of the award decision needs to be made. The elements of the award decision which need to be documented are:

- A tabulation and evaluation of bids. This will include a determination that the low bid is fully responsive to the IFB. Responsiveness is discussed in Section 4.4.4, *Responsive Bidder*. When there are lower bids than the bid being accepted for award, the award decision document must give the reasons for rejecting the lower bids. When there are equal low bids, the documentation must describe how the tie was broken.
- A determination that the low bidder is responsible. Responsibility is discussed in Section 5.1, *Responsibility of Contractor*.
- A determination of the reasonableness of the price. Section 5.2, *Cost and Price Analysis*, discusses the FTA Circular requirement that every procurement action must include a cost or price analysis to determine the reasonableness of the proposed contract price. The starting point for this cost or price analysis should be the independent cost estimate. Significant differences between the independent cost estimate and the low bid need to be discussed.

5.4.2 Negotiated Procurements

5.4.2.1 File Documentation of Selection Decision

Best Practices

Having considered all of the available proposal evaluation data, the selection official must document the basis for the decision to select that offeror "whose proposal is most advantageous to the grantee's program with price and other factors considered."¹⁷ The contract file documentation should include the following:

- *Determination of Competitive Range* (See Section 4.5.3, *Competitive Range*). The Competitive Range Determination identifies those proposals that had a reasonable chance of being selected for award, given their relative technical strengths and weaknesses, and their relative prices.

¹⁷ - FTA Circular 4220.1E Paragraph 9.d.(4).

- The *Technical Evaluation* (See Section 4.5.2, *Evaluation of Proposals* and *Appendix B.1*). The technical evaluation information indicates the relative strengths and weaknesses of the proposals, together with the technical risks (if any) of the various approaches.
- A *Cost/Price Analysis* (See Section 5.2, *Cost and Price Analysis*). In all instances, the contract file must reflect evidence of a cost or price analysis. You may wish to prepare a separate Cost/Price Analysis memorandum analyzing the costs or prices proposed against: (a) the independent cost estimate prepared prior to solicitation, (b) specific company information in the proposals, such as the particular technical approach being offered, and (c) any other pertinent information such as a technical evaluation of the cost proposal, an advisory audit of the offeror's cost proposal, or a comparison of prices offered with prior procurements.
- If the contract being awarded is a cost-reimbursement type, the Cost/Price Analysis needs to address the *realism* of the various cost elements proposed, and where the costs are unrealistically low, an adjustment should be made to reflect what the agency believes the effort will actually cost given that offeror's specific technical approach as well as its direct and indirect cost rates. This cost realism assessment must be carefully considered when determining which offeror's proposal represents the best value for the procuring agency. All too often contractors are unrealistically optimistic in estimating costs in competitive cost-type situations (known as "buying in"). The result is that the lowest proposed/estimated cost is not necessarily the most advantageous choice for the procuring agency.
- Determination of Selected Contractor's Responsibility (See Section 5.1, *Responsibility of Contractor*). Documentation regarding the selected contractor's responsibility should be included in the file.

5.4.2.2 Pre-Negotiation Plan

Best Practices

Many procuring agencies have adopted a requirement for written *Pre-Negotiation Plans* prior to conducting negotiations with offerors in negotiated procurement situations. The advantages of using this kind of document are numerous. First, it requires a reasoned analysis of the offeror's price, leading to the establishment of a negotiation objective which is acceptable to all organizational elements of the agency. Second, it allows you to develop a *range of price objectives* which is acceptable to your agency management, so that negotiations can be concluded if the price can be negotiated within the range established in the Pre-Negotiation Plan. A Plan also brings together the various interested parties of the agency in the development and approval of a unified negotiation position, so that internal agency differences of opinion can be resolved before negotiations begin, producing negotiation objectives that everyone can support.

An example of a grantee Pre-Negotiation Plan can be found in Appendix B.6.¹⁸ Several features of this Plan are worth noting:

- The independent grantee cost estimate was used in the price analysis of the contractor's proposal.
- An advisory audit of the contractor's cost proposal was performed and the results were used to develop the prenegotiation position. Major subcontractors were also evaluated.
- The technical program office and the contracts office met to jointly develop a negotiation position that was acceptable to both. (Note: some organizations find it helpful to develop their negotiation objectives as a range of prices, to include both a target price objective and a maximum price which will not be exceeded in negotiations without further approvals by agency management. This approach allows the negotiation team a degree of flexibility which is usually needed because contractors often bring information to negotiations which agency personnel did not have when they prepared their negotiation plan.)¹⁹
- Agency management officials reviewed the pre-negotiation strategy and approved the position adopted, thus precluding any after-the-fact "second guessing" during the contract review process.

5.4.2.3 Memorandum of Negotiations

Best Practices

It is essential that every contract award be documented with a *Memorandum of Negotiations*. An example of a Memorandum of Negotiations is in Appendix B.9.²⁰ This memorandum must describe the most important aspects of the procurement history, which at minimum would include the following information:

- A statement of the purpose of the procurement.
- A history of the procurement, including references to important documents with their dates and identifying numbers. These would include: advertisements of the procurement, RFP, technical evaluation of proposals, etc.

¹⁸ - Metropolitan Transit Authority, Houston, TX. Procurement Manual, Exhibit 9, dated August 1, 1994.

¹⁹ - BART Procurement Manual, Rev. 4, dated July 20, 1994, p. 297, "Price Positions."

²⁰ - MTA, Houston, TX, Procurement Manual, Exhibit 10, dated August 1, 1994.

- The names and positions of each person who participated in the negotiations.
- An explanation of how the final price was negotiated. This explanation needs to reference the Pre-Negotiation Plan price objective (if a Plan was developed), the independent cost estimate (which should always be developed), and any advisory audits that may have been conducted. See Appendix B-12 (Negotiation Memorandum Sample Format) for an illustration.
- A discussion of important contract terms and conditions, such as insurance requirements, DBE participation, Buy America provisions, etc.

Chapter 6

6 - Procurement Object Types: Special Considerations

6.1 Construction (10/98)

- 6.1.1 The Traditional Construction Process - Design/Bid/Build (10/98)
- 6.1.2 Construction Management ("CM") (10/98)
- 6.1.3 "Fast Tracking"-- Phased Design, Award and Construction (10/98)
- 6.1.4 "Turnkey" -- Design/Build Contracting (10/98)
- 6.1.5 Value Engineering (6/03)
- 6.1.6 Facilities Maintenance -- Job Order Contracts (10/98)
- 6.1.7 Partnering (4/05)
- 6.1.8 Competitive Proposals vs. Sealed Bids (10/98)
- 6.1.9 Incentives to Reduce Project Completion Time (10/98)
- 6.1.10 Special Contract Provisions (10/98)

6.2 Equipment and Supplies (2/00)

6.2.1 Lease/Maintain (2/00)

- 6.2.1.1 Lease/Maintenance of Vehicles (2/00)
- 6.2.1.2 Lease of Heavy Equipment with Operators (2/00)

6.3 Rolling Stock (10/98)

6.3.1 Buses (10/98)

- 6.3.1.1 Competitive Proposals vs. Sealed Bids (10/98)
- 6.3.1.2 APTA Standard Bus Procurement Guidelines (10/98)

6.3.2 Rail Cars (10/98)

- 6.3.3 Joint Procurements of Rolling Stock and "Piggybacking" (6/03)
- 6.3.4 Pre-Award and Post-Delivery Reviews for Buy America Act Compliance (10/00)
- 6.3.5 Warranties (6/03)

6.4 Professional Services (5/96)

6.5 Architect-Engineering Services (3/04)

6.6 Insurance (11/03)

6.7 Artwork (6/03)

6.1 CONSTRUCTION

Construction contracting presents a unique set of problems for the procurement specialist, and this section of the BPPM will attempt to identify some of these issues. A number of factors tend to make construction contracting an area where problems abound. The first is the uniqueness of the projects themselves; i.e., they are usually performed with drawings and specifications which are developed for the first, and only time, for that project. Because the documents are one of a kind, there has been no prior experience which would have identified errors and clarified ambiguities. Another factor is the highly competitive nature of the bidding process, producing prices which have no leeway for solving design problems which arise during performance of the contract or for accommodating changes. Add to these factors the legal complexities arising from Federal, State and local statutes, regulations and codes, and the process becomes one unlike any other in the procurement field.

There is a high degree of specialization in the construction industry among firms. The major areas being excavation and foundations, masonry, steel work, roofing, plumbing, electrical, and heating and air conditioning. Given this degree of specialization, the role of the general contractor is to manage other specialty contractors, scheduling and coordinating their work. In this role general contractors assume a high degree of risk when they bid firm- fixed prices, thus guaranteeing performance for the bid price. It should also be noted that a number of States require that the various trades be bid as separate primes, which adds to the complexity of project management and contracting; e.g., who controls the various contractors? If the general trades contractor is given this responsibility, how will it be compensated and what enforcement authority does it have against the other primes?

Another party in this process is the *surety*, who issues a bond assuring performance of the contract, including the payment of suppliers and mechanics in accordance with the terms of their contracts with the construction contractor.

A number of different construction contracting strategies are discussed below. Some of the material presented has been excerpted from the American Bar Association (ABA) *Model Procurement Code*, Chapter 5, which grantees are encouraged to read. Grantees are also encouraged to obtain the FTA construction management manual entitled *Project and Construction Management Guidelines 1996 Update*.¹ These *Guidelines* were developed by FTA "to assist local Transit agencies in developing management structures and work programs to effectively plan and implement the various phases of FTA-funded transit capital improvement projects." The *Guidelines* contain useful procurement information and guidance related to construction projects.

¹ - This document may be obtained from FTA, Office of Program Management, Engineering and Management Division, TPM-42, at (202) 366-2440.

6.1.1 The Traditional Construction Process - Design/Bid/Build

It has been traditional in the construction industry to employ an *architect/engineer (A/E)* to complete a detailed design of the entire project before soliciting bids from construction contractors. This traditional approach is known as *sequential design and construction*. This sequential design/construction approach requires that a detailed design package of the entire project be complete before bids are solicited from construction contractors. Following award of the construction contract, the A/E is often retained by the owner for the construction phase, and acts as the owner's agent, to inspect the construction work to ensure that the structures are built according to the designs and specifications.

Advantages - A major advantage of the sequential design and construction approach is that complex or one- of- a- kind projects can be thoroughly planned and thought through before construction begins. The traditional approach thus produces, in the design phase of the project, the most accurate estimate of final project costs, and this is an advantage of the traditional technique. If problems are encountered with design aspects for the latter stages of the project, the earlier design features or phases can be modified before any construction work has been done, thus avoiding construction contractor claims and delays. Another advantage is that the Agency is given a fixed price for completion of the entire project before construction begins. There may also be advantages in obtaining the necessary financing and project approvals. Overall management of the project should also be simplified by this approach.

Disadvantages - *Sequential design and construction* requires a longer time to complete the project than *phased design and construction ("fast tracking")*. And since time pressures are often the most intense issues confronting the Agency, the sequential method may not be feasible. Alternative contracting approaches have arisen to shorten the project completion time. These include *phased design and construction ("fast tracking")*, which often involves the use of a *construction manager*, and *turnkey (design-build)* contracting.

6.1.2 Construction Management

In recent years a construction technique known as *construction management* has come into practice. In this scheme the owner employs a *construction manager* who acts as the owner's agent during the design phase and as overseer during the construction phase. During the design phase the *construction manager* works closely with the A/E, monitoring the A/E's efforts to ensure that the design will be within the owner's budget, will accomplish the owner's purposes, etc. One of the critical tasks a CM can perform during the design phase is a *constructability review*, ensuring that the design can actually be built.² The specific role of construction managers in this phase will vary greatly from project to project. Their duties may include cost

² - See *Project and Construction Management Guidelines 1996 Update*, Section 3.2.2 *Configuration, Constructability Reviews*.

estimating, cost evaluating, project scheduling, review or preparation of contract documents, receiving bids, and advising the owner of bidder qualifications and the acceptability of bids.

Multiple prime contractors - During the construction phase, the construction management role can also take a variety of forms. Under one scheme the *construction manager* will coordinate the work of the various *specialty contractors*, who contract directly with the owner as *multiple prime contractors*. The *specialty contractors*, who would normally have been subcontractors to a *general contractor* in the traditional construction arrangement, now contract directly with the owner, and the coordination normally done by the *general contractor* is performed by the *construction manager*. The *construction manager* may also assist the A/E with inspections of the work. In this scheme the *construction manager* has no financial liability for successful completion of the work--there is no contract with the owner to complete the project for a contract price.

Advantages - The *construction manager* will bring construction expertise to the project team at an early design stage of the project, enabling design decisions to be made with an appreciation of their impact on construction. A *construction manager* may be indispensable if the Agency lacks the personnel resources to adequately and aggressively manage the project. *Phased design and construction* may be used much more easily because the *construction manager* can perform the vital functions of coordinating the work of the A/E contractor and the *specialty construction contractors*.

Disadvantages - The construction manager's fee will add to the overall cost of the project, and the cost of employing an independent construction manager may not be feasible on smaller construction projects.

Contract provisions - It is critical that the construction manager's contract clearly define the authority and the duties of the construction manager with respect to the other contractors on the project; e.g., how much authority does the construction manager have over the work of the A/E and the specialty construction contractors? If the construction manager fails to properly coordinate the work of the specialty construction contractors, will the construction contractor or the Agency be liable? It will also be necessary to define the CM's authority in the design and construction contracts, so that these contractors will know the degree to which they are to accept direction from the CM.

6.1.3 "Fast Tracking" -- Phased Design, Award and Construction

Fast tracking is a procedure designed to shorten the overall time for project completion by phasing the design and construction activities so that they can be performed together. In this scheme each phase of the project is placed under contract once the design for that phase is completed. Unlike the traditional approach, where the entire project is first designed and then contracted for with one construction contract, the fast track scheme will complete the design work in phases, and then award construction contracts for the various subsystems or phases once the design for that phase is finished. Thus there will be a number of specialty construction

contracts awarded by the owner, and a *construction manager* will normally, though not necessarily, be retained to assist in packaging the various specialty contracts and to manage the work of these specialty contractors. This work of defining and managing the specialty contracts can also be done by in-house project management or by the *A/E*.

Advantages - Phased design and construction can reduce the overall completion time of the project. It can also allow the Agency to reduce the scope of the later phases if the cost of the earlier phases exceed the budget. It also allows the Agency greater flexibility in the timing of the construction contract awards, thus taking advantage of market conditions, or managing the available funding.

Disadvantages - There is a risk inherent in phased design and construction because portions of the project are begun before the later portions are designed. If major changes occur in the later phases, they may cause costly changes in the earlier work and delays to the specialty contractors. These are risks which will be borne by the Agency.

6.1.4 Turnkey or Design/Build Contracting

This contracting technique has seen increasing use in recent years. Between 1987 and 1992 there was a 300 percent increase in design-build projects, which indicates a growing importance of turnkey projects in the construction industry. According to statistics provided by the Engineering News Record, by 1995, 30 percent of all non-residential construction was using the turnkey method. The growing importance of turnkey methods was attributed to its benefits in saving time and costs with no reduction of quality relative to conventional project approaches. It must be noted, however, that not all States permit design-build contracting by State agencies.

In this scheme, a transit agency contracts with a single private entity, the turnkey contractor, for the design, construction and delivery of a complete and operational project. In some instances, the contractor is required to operate and maintain the system for a defined period of time. The private contractor is typically a consortium of private companies offering engineering and design, construction, manufacture of vehicles, finance and related support services. The developer-contractor will be selected competitively based on "performance-type" (non-detailed) specifications which describe the owner's objectives and requirements. Developers will submit proposed designs with their competitive proposals, and owners must select between competing design approaches and prices.

It should be noted that one of the drawbacks of design-build is that the owner does not have an independent source (the *A/E* in traditional construction) overseeing design implementation and verifying conformance with the drawings and specifications.

Workshop on International Transit Turnkey and Joint Development - The Transportation Research Board has published a very informative Research Circular entitled *Proceedings of the*

*Workshop on International Transit Turnkey and Joint Development.*³ This Workshop was held on October 15-19, 1996 and its purpose was "to explore current international experience in the development of turnkey transit projects, to discuss effective turnkey practices, and to identify those aspects that warrant further consideration." The Research Circular summarizes each of the presentations made at the workshop, and presents the "lessons learned" by those organizations using various turnkey approaches. The names of the presenters and their organizations are also given, which provides a reference tool for contacting others who are involved with turnkey projects. Grantees are encouraged to obtain this Transportation Research Circular--it is a valuable source of information. Some of the more important observations made at the Workshop include the following:

- The Federal government and most States, but not all, allow turnkey for some agencies and/or projects. In fact, the recently enacted Federal statute--Transportation Equity Act For The 21st Century (TEA-21)--permits grantees to use turnkey contracting to design and build a mass transportation system or an operable segment of a mass transportation system. Some States have recently expanded their regulations to permit design-build contracts, and this trend is likely to continue. Many of the current transit turnkey projects had to enact legislation or receive waivers to permit the turnkey process.
- *A negotiated procurement process is strongly recommended for selection of a turnkey contractor.* Discussions between the owner and offerors facilitates a true "meeting of the minds"; allows crafting of tailored solutions for contractor concerns; and achieves the optimum balance of risk and price. Negotiations can lead to optimum decisions. If a negotiated procurement cannot be done, then a two-step bidding process is recommended as the next best approach. Some States which allow design-build contracting require a bid process rather than a negotiated procurement.
- Industry input on documents should be sought prior to solicitation.
- Agencies should develop and follow a detailed selection procedure that includes a multi-disciplined and knowledgeable evaluation committee.
- Design-build requires a new generation of contract documents that incorporate the needs of three distinct elements: design, construction and operation. Melding the required pricing and procedures into one contract is a complex endeavor.

³ - Transportation Research Circular Number 483, March 1998. Transportation Research Board, National Research Council, National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

- Typical post-award concerns with design-build contracts include the interpretation of commercial terms and the pricing of changes (including the obtaining of adequate cost data to support change orders). Specific recommendations include: requirements for contractor job-cost systems; pricing change orders based on the job-cost system; and detailed audit provisions.
- The turnkey approach may result in lower capital costs and fewer change orders and contract difficulties.
- The turnkey approach may have an adverse impact on small and medium-sized firms, including DBE firms. Agencies may want to consider using incentive clauses in their solicitations to encourage DBE participation, as well as requiring offerors to identify small and minority owned businesses in their proposals during the prequalification/RFP stages of the procurement. It was reported that BART had been very successful with this prequalification requirement in the San Francisco Airport Extension turnkey demonstration project.⁴
- Environmental approvals, intergovernmental coordination, and finance should be in place prior to the turnkey procurement. It is critically important that project participants develop a teaming perspective. A formal *partnering* agreement with the contractor team and tangential agencies has been used with success. See Section 6.1.7 *Partnering*.

6.1.5 Value Engineering

REQUIREMENT
FTA Circular 4220.1E, Section 7(g) encourages the use of value engineering clauses in construction contracts: <p><u>g. Use of Value Engineering in Construction Contracts.</u> Grantees are encouraged to use value engineering clauses in contracts for construction projects. FTA cannot approve a New Starts grant application for final design funding or a full funding grant agreement until value engineering is complete (see Circular 5010).</p>

DISCUSSION

FTA Circular 4220.1E does not require value engineering clauses but it does encourage them in construction contracts. Value engineering is a procedure designed to incentivize contractors to submit change proposals which reduce the cost of contract performance

⁴ - Contact Department Manager-Procurement, BART at (510) 464-6380.

by promising the contractor a share of the savings. Contractors can often find less expensive ways to perform their contracts than the methods prescribed in their contract specifications. They will be reluctant, however, to propose changes which will reduce their contract price and have the effect of reducing their profit on the contract. Value engineering is a technique designed to overcome this disincentive by offering them a share of the savings resulting from their change proposals.

It is important to note that some contractual arrangements (e.g., design-build contracts) may inherently include value engineering concepts and principles. Where this is the case, FTA does not require separate value engineering proposals, change orders, or other processes. From a procurement view, the concept of value engineering is more important than the form it takes.

The Federal Government uses value engineering clauses in contracts for supplies, services, construction and architect/engineer services. Part 48 of the FAR is dedicated to the subject of value engineering. The prescribed clause for Federal construction contracts may be found at FAR 52.248-3 *Value Engineering-Construction*. While this clause is not required for grantee third-party contracts, it may prove useful as a guide as to how to structure a value engineering clause.

FTA's Project and Construction Management Guidelines 1996 Update, Section 4.2.3 *Value Engineering and Peer Review*, presents a discussion of the value engineering process during the design phase of the project.⁵

Best Practices

Value engineering clauses in use by Transit Agencies tend to limit the type of savings which the Agency will share with the Contractor to those expected on the contract being performed. These are commonly known as "instant savings." The Contractor would not share in "collateral savings" or "future savings" resulting from his change proposal. "Collateral savings" are those savings anticipated by the Agency outside the contract, such as operations, maintenance, logistical support, etc. "Future savings" would be those resulting from the Contractor's value engineering proposals on future contracts for the same deliverable items. The typical share ratio is 50 percent for the Agency and 50 percent for the Contractor of any "net savings" resulting from the Contractor's change proposal. "Net savings" are defined as "gross savings" less the Contractor's costs for developing and implementing the proposal as well as any Agency costs resulting from the change, such as review, implementation, inspection, etc. Estimated "gross savings" would include the Contractor's labor, material, equipment, overhead, profit and bond. At the conclusion of negotiations for the change proposal, a contract modification is issued reducing the contract price by the Agency's share.

⁵ - See note 1.

An important feature of all value engineering clauses is that the Agency's decision to accept or reject the contractor's proposal is final and conclusive, and not subject to appeal.

Another important feature of the usual Agency clauses is that the Contractor's value engineering change proposal (VECP) must not "impair any essential function or characteristic of the Work, such as safety, service life, reliability, economy of operation, ease of maintenance, and necessary standardization of features."⁶ Another Agency's clause reads that the Contractor's VECP "shall not alter any item's characteristics such as functionality, service life, reliability, economy of operation, ease of maintenance, and necessary standardized features and appearance."⁷

6.1.6 Facilities Maintenance -- Job Order Contracts

The Metropolitan Atlanta Rapid Transit Authority (MARTA) has made use of a very cost-effective procurement approach known as Job Order Contracting (JOC) for its facilities maintenance requirements. These requirements would include the repair, alteration, modernization, maintenance and rehabilitation of buildings, structures, or other real property. The JOC is a competitively bid, firm fixed price indefinite quantity contract, against which MARTA issues Work Orders as specific needs arise.

The unusual feature of the JOC is that the Invitation For Bid (IFB) includes all of the conceivable line items of work, with specifications/definitions for each line item, and unit prices for each item. These specifications and line item prices were developed by MARTA with the assistance of a consulting engineering firm. The line item unit prices were furnished to prospective bidders in a "Unit Price Book," which was developed by the consultant. The Unit Price Book has over 90,000 items which detail specific repair and construction tasks and specifications. The Book covers a wide range of areas such as concrete, air distribution, plumbing, electrical, and hazardous and toxic waste. The Unit Price Book is work-segment based. Each job is detailed and broken down by task. The prices are based on the use of experienced labor and high quality materials. The Book also incorporates prevailing market area cost data and wages.

When bids are solicited, the objective is to obtain bids on "adjustment factors." *No specific projects are bid. Award is based on the lowest proposed adjustment factor.* The two price adjustment factors are for normal and overtime work. These two adjustment factors are applied to *all items in the Unit Price Book*. Adjustment factors are required to be bid to four decimal places. The best way for a bidder to develop its adjustment factor is to price out several types of

⁶ - Metropolitan Atlanta Rapid Transit Authority (MARTA), General Conditions-1988, Clause 49 *Value Engineering Proposals*. To discuss MARTA's approach, contact Mr. Wayner Crowder, Director of Contracts and Procurement, at (404) 848-5587.

⁷ - San Francisco Bay Area Rapid Transit District (BART), General Conditions for Construction Contracts, February 1, 1998, Clause GC4.8.1 *Application of VECP*. To discuss BART's approach, contact Department Manager - Procurement, at (510) 464-6380.

projects and take an average. For example, if the price book states that the cost to replace a window is \$100, and a prospective bidder develops an estimate of \$75, then the bidder's adjustment factor is .7500. Likewise, if the bidder estimates a price of \$110 to replace the window, then the bidder's adjustment factor would be 1.1000. On the most recent award, the winning low bid offered an "adjustment factor" of 0.7700.

Following award of the JOC, the process for issuing Work Orders would be as follows:

- A meeting is held with the contractor to discuss the scope of the work to be done.
- A Work Order Proposal is then requested from the Contractor. The Contractor's price is computed by:
 - Selecting various pre-priced construction tasks from the Unit Price Book.
 - Multiplying the pre-established prices from the Unit Price Book by quantities and then by the Contractor's adjustment factor.
- The Contractor's proposal is compared to an independent Authority estimate.
- If the price is reasonable, a Work Order is issued.
- If the price is not reasonable, the job is solicited under normal procurement procedures.

The JOC process offers the opportunity to save significant time and administrative effort because there is only one competitive bid process, and that is when the adjustment factors are solicited. Thereafter, individual jobs do not have to be competed, so there is no lengthy advertising or solicitation time, or complex solicitation documents to prepare, approve and issue. The JOC can be a multi-year contract, thereby reducing the number of times the program must be competed. MARTA's contract is for one base year plus two one-year options, and its value is approximately \$9 million.

6.1.7 Partnering

Partnering is a concept/technique designed to foster a team building, or "partnering" frame of mind toward the accomplishment of the construction project. Partnering was originally developed by the Army Corp of Engineers for use on major construction projects with large project staffs on the work site and where effective communications are essential. The parties involved in the performance of the project, including the Agency, the A-E firm, the prime Contractor, and all subcontractors would meet together on a regular basis (at least monthly) to establish and maintain open lines of communication, with the goal of ensuring relationships of trust and cooperation.

The partnering process usually employs a professional Facilitator who conducts the sessions so as to promote trust and reach mutual agreements on how the project is to proceed. The

Facilitator's fee and associated costs are paid for by the Contractor who is in turn reimbursed by the owner (50%) from a line item in the contract Price Schedule. The partnering process does not change or alter the contract agreement. It is not just a one-time meeting at the start of the project, but is an on-going process. It is usually accomplished in five distinct phases:

- Phase I is a joint session of top executives designed to arrive at a clear agreement on the project's business goals and establish a clear issue resolution process. Issues generally focus on safety, budget, communications, quality, schedule, teamwork, impact on the community and a commitment to work together for a successful project. MARTA developed a *Partnering Charter* for its North Springs Station Project, signed by all the team members, which reads as follows:

We, the team members of the North Springs Station (CF-520) Project Team, are committed to continuing the tradition of effective partnering among our organizations and to delivering a facility in which all team members take pride.

We will measure our collective success through the following project objectives:

- *Complete the project on schedule and meet all milestones*
- *Provide a safe worksite to minimize lost time accidents*
- *Complete the project within budget*
- *Fair profit earned by contractor*
- *Quickly resolve claims without litigation*
- *Deliver a quality product within specified standards*
- *Serve as responsible neighbors and provide a positive impact to the surrounding community*

We will promote teamwork based on the following principles and attitudes:

- *Timely inputs, responses and decisions*
- *Open, effective communications*
- *Honesty and trust*
- *Solving problems at the lowest possible level*
- *Working together against the job - not each other*
- *Full team commitment and participation in partnering*

Note that the *Partnering Charter* identifies its goals as the best interests of *all the parties*. These interests include the earning of a fair profit by the Contractor. It is critical for the Agency's personnel to see the Contractor as a team member whose interest in earning a fair profit is equally important to the interests of the Agency.

- Phase II consists of a workshop where all stakeholders participate in developing a project charter defining team goals, conduct and risks. Washington Metropolitan Area Transit

Authority (WMATA) project members developed the following *Project Charter* for the Metro Georgia Avenue-Petworth Station:

Project Priorities:

- *Successful Partnering*
- *Early identification and resolution of problems*
- *Realizing one's own responsibilities and obligations*
- *Community relations*
- *Openness*
- *Timeliness (especially early submittals, early permits)*
- *Being able to live with changes*
- *Safety*
- *Quality*
- *Making a profit*
- *EEO, disadvantaged business program, employee salaries*
- *Maintaining professionalism*

Challenges We Face:

- *Getting approvals quickly*
- *Resolving issues by give and take*
- *Minimizing changes*
- *"Designing through changes"*
- *Slurry wall*
- *Architectural dome*
- *Being paid on time*
- *Closeout within 60 days*
- *No claims...if unavoidable, finalize promptly*
- *City construction*
- *Public safety*
- *Hazardous material*
- *Avoiding interference with other contractors*
- *Staying in harmony*

WMATA has used Partnering in its major construction contracts for over ten years and in its last two Railcar contracts. WMATA believes that partnering may also be useful in bus contracts where there is a need to enhance communications and working relationships between the owner and the bus manufacturer. For example, issues of delivery, payment and potential performance matters relative to testing, warranty, etc. could also be addressed.

- Phase III provides for monthly evaluations by those managing the job for both parties. The objective is to solve problems at the lowest level, and all members should be evaluating the team's progress, or lack thereof, in meeting the established goals. Monthly

meetings are held at the executive level to review and discuss areas of concern or interest. Problems are identified and solutions are agreed to. Organizational impediments to solutions are resolved. If necessary, unresolved issues are escalated to higher managers. Many issues are resolved before they become major problems and these successes are also discussed at the monthly meeting.

- Phase IV is an executive session, supplemented by key project personnel from both parties. This is normally a quarterly meeting. The purpose is to address the main issues that require resolution, and to ensure that the Partnering process remains on track.
- Phase V is a closure session to provide feedback on the value of the Partnering process. This session is not always held.

Additional information on *Partnering* is available from the Construction Industry Institute.⁸

6.1.8 Competitive Proposals vs. Sealed Bids

Projects Involving Technology - Generally such projects are either part of a larger construction project, in which case they may fall under competitive bidding requirements, or technology acquisition projects involving professional services and possibly an installation component, which takes them outside the construction field with its sealed bid requirements. Where the work to be performed under contract is to a dominant extent other than construction, some Transit Agencies have experienced situations where a competitive proposal has proven to be a better method of contracting for the project than the typical sealed bid approach. This has been true for projects which entailed technology, such as software and systems integration work. In these situations you may want to evaluate alternative technical approaches or alternative ways of construction. These conditions lend themselves to an RFP type of solicitation, where you will have the flexibility to hold discussions with the offerors and select the "best value" for your Agency, considering not only price but the value of the products being offered, including their expected reliability and maintainability. One such project involving technology was a contract for a Public Address/Customer Information Screen. This project is being constructed over a number of phases. The first phase contract was handled as a sealed bid. The problem with this approach was that the lowest responsible bidder was a construction contractor and not a systems integrator. There was a considerable amount of software involved and the solicitation documents did not mention who retained software rights. A project such as this should be solicited as an RFP so that negotiations can take place and prospective contractors can be evaluated on the basis of their suitability for the work.⁹

⁸ <http://construction-institute.org>.

⁹ New York City Transit. Contact Ms. Judi Gibson, Assistant Chief Procurement Officer -- Engineering, Construction & Capital Division of Materiel at (718) 694-4113.

Critical Projects Involving Schedule Incentives - If state law permits, it may be advantageous to consider a negotiated method of procurement instead of sealed bids when the project involves a critical completion schedule and where you have chosen to use incentive provisions in the contract or a bid/proposal evaluation method such as those described in section 6.1.9--*Incentives to Reduce Project Completion Times*. Where the methodology being used to evaluate bids is unconventional, and where it may be advantageous to have the flexibility to hold discussions with the prospective contractors, an RFP approach may be preferable to a sealed bid method because it will give you the ability to discuss the contractors' proposed approaches to schedule improvement and the realism of those proposals. It must be recognized, however, that a negotiated procurement will require more time to award, and this may be counter-productive when the project is a time-critical one.

6.1.9 Incentives to Reduce Project Completion Times

Transit agencies have had success in reducing project completion times by using a technique wherein bids are solicited and evaluated in terms of the prices offered and the best achievable completion schedule.¹⁰ The contract award is determined by the *lowest evaluated bid*, using both the bid price and the proposed completion schedule. In this procurement scenario:

- The Agency specifies the maximum duration of the project in the bid documents.
- The Agency determines the value of a "day" during the contract period and specifies this value in the bid documents.
- Bidders must propose the project duration (best achievable schedule) in their bids.
- The bid documents would define the damages for failure to achieve the proposed completion schedule, and the bonuses for early completion, if the Agency should choose to use them with the damages provisions. The use of damages for failure to meet the proposed completion schedule is important in order to keep the bidders "honest" in their proposed completion schedules. The use of bonuses will provide an even stronger incentive for the bidders to successfully make their proposed schedules after contract award.
- Price + Duration (# of Days) = Evaluated Bid

Example:

	<u>Bid</u>	<u>Company X</u>	<u>Days</u>	<u>Company Y</u>	<u>Days</u>
Value of a day is	A - (Bid Price)	\$5,000,000		\$5,500,000	
\$5,000	B - (Contract Duration)	-----	720 Days	-----	600 Days

¹⁰ - See note 11.

Value of Duration (Days x \$5,000)	\$3,600,000	\$3,000,000
Evaluated Total	\$8,600,000	\$8,500,000

The contract would be awarded to Company Y since its evaluated bid is lower than that of Company X by \$100,000. Value of award would be \$5.5 million.

Advantages to Price Plus Schedule Bidding - This technique is likely to encourage efficient contractors to bid, and it offers the likelihood of shorter construction project durations because of the strong financial incentives for achieving the best completion schedule.

Concerns with Price Plus Schedule Bidding - *It is extremely important that the construction contractor have control over the work site*, and that the Agency's responsibilities at the work site be minimal or, preferably, nonexistent. If the contractor is dependent upon the Agency to furnish support at the work site, or if the contractor's work is dependent upon the activities of other contractors, the Agency can expect claims regarding the issue of delays, which in turn affect the incentive provisions of the construction contract. In view of the probabilities of claims and litigation, Agencies should avoid incentive contracts such as this unless they can turn a work site over to a construction contractor and allow the contractor to control that site and the scheduling of all work required to complete the project. Where contractors lack the necessary control over the work site, Agencies may well have to pay higher prices, based on the contract bonuses and the contractor's successful claims for delays, and still have a project that is late in completion.

Completion incentives may work to discourage prime contractors from subcontracting with small or disadvantaged business firms. Primes will probably seek partners who are large businesses with proven track records, and which have substantial resources available to perform the work as expeditiously as possible.

The quality of construction work may suffer due to the schedule pressures, and Agencies will need to exert close surveillance over the contractor.

6.1.10 Special Contract Provisions

Construction contracts require certain provisions which are unique to that activity. These provisions are discussed in detail in other sections of the BPPM. Following is a summary of the special provisions and the BPPM sections where they are discussed.

Labor - The three wage and hour laws governing construction in the Federal realm are the Davis-Bacon Act, the Contract Work-Hours and Safety Standards Act, and the Copeland Anti-Kickback Act. The applicable contract clauses are discussed in Appendix A.1, clauses 16, 17 and 18. Section 8.1.2 *Davis Bacon Act* contains more detailed guidance with respect to administering the requirements of this Act.

Bonding - Construction contracts require contractors to furnish three types of bonds--bid bonds, payment bonds and performance bonds--which are discussed in Appendix A.1, clause 13, with more detailed guidance on each type of bond in Section 8.2.1 *Performance Bonds*.

Liquidated damages - Section 8.2.3 *Liquidated Damages* contains guidance on the use of liquidated damages clauses.

Differing Site Conditions – Section 9.2.3.1 contains guidance on administering the *Differing Site Conditions* clause.

Specifications for Construction - Section 3.4 *Specifications for Construction* discusses requirements within FTA Circular 4220.1E and the Master Agreement (MA) which may affect your construction specifications.

Insurance - Section 6.6 *Insurance* discusses an approach to insuring construction project contractors known as *Owner Controlled Insurance Programs (OCIP)*, which has proven to be an effective method of insuring the contractor teams involved in construction projects.

Warranties - Obtaining acceptable warranty documents in a timely manner from contractors has been historically difficult. No contractual incentive has existed to motivate contractors to supply the required warranties. Grantees may wish to consider making the submission of an acceptable warranty form a condition of product or system acceptance in order to motivate contractors to furnish the required form. Grantees might also include the warranty forms as a fixed-price line item in the contract for payment purposes, thus giving the contractors a strong motivation to supply the required forms.

Contract Close-out - Close-out of construction contracts will require certain documentation unique to these contracts, such as lien waivers, as-built drawings, etc. These requirements are discussed in Chapter 10, *Close Out*.

6.2 EQUIPMENT AND SUPPLIES

6.2.1 Lease/Maintain

REQUIREMENT
Requirements related to the lease of equipment and facilities may be found in the following regulations: <ul style="list-style-type: none">(a) FTA Circular 4220.1E generally, and paragraph 7d which requires, where appropriate, an analysis of lease versus purchase alternatives to determine the most economical approach.(b) FTA Master Agreement MA(12), Section 16, <i>Leases</i>.(c) <i>Capital Leases</i> (49 CFR, Part 639.)

DISCUSSION

Since equipment leases are considered “third party contracts’ within the meaning of FTA Circular 4220.1E, the requirements of that Circular apply to such procurements. The Circular requires a lease versus purchase analysis to determine the most economical approach to any given procurement. The Master Agreement, Section 16, concerns capital leases, in accordance with 49 CFR, part 639.

Lease vs. purchase alternatives – Whenever an agency is considering the leasing of equipment, a lease vs. purchase analysis should be made. The analysis should be appropriate to the size and complexity of the procurement. It is usually more economical to purchase equipment than to lease it. This is not always true, however, especially when highly complex equipment is involved and there are issues of maintaining the equipment or having trained personnel who are competent to operate the equipment. In determining whether the lease of equipment is feasible, the following factors must be considered:

- **Estimated length of the period the equipment is to be used and the amount of time of actual equipment usage;**
- **When circumstances require the immediate use of equipment to meet program or system goals and the leasing would serve as an interim measure to meet these immediate needs.**
- **Financial and operating advantages of alternative types and makes of equipment;**
- **Total rental cost for the estimated period of use;**
- **Net purchase price if acquired by purchase;**
- **Transportation and installation costs;**
- **Maintenance and other service costs (e.g., the cost of permanent housing facilities for heavy cranes might preclude their purchase, and the lack of trained operators of heavy equipment may dictate that the agency lease the equipment with trained operators);**
- **Difference in warranty coverages between lease and purchase; e.g., some office equipment leases do not provide for warranty repairs whereas new purchases would be covered by warranties;**
- **Availability of a servicing capability, especially for highly complex equipment (can the Agency service the equipment if it is purchased?);**
- **Potential obsolescence of the equipment because of imminent technological improvements;**

- **Trade-in or salvage value;**
- **Imputed interest costs (net present value of lease payments); and**
- **Insurance costs.**

Best Practices

Leases with options to purchase – When a lease is justified, a lease with option to purchase may be appropriate.

Long term leases – Generally, a long-term lease should be avoided, but may be appropriate if an option to purchase or other favorable terms are included.

6.2.1.1 Lease and Maintenance of Vehicles

Lease vs. Buy Analysis – When comparing the costs of leasing vs. ownership, maintenance costs will usually be a major economic factor. Indeed the primary advantage of leasing is the avoidance of maintenance costs for items such as brakes, batteries, etc. Grantees must carefully estimate the maintenance costs over the anticipated life of the vehicle. The costs of ownership will be increased by these maintenance costs and decreased by the anticipated resale value (salvage value) of the vehicle when it is sold.

Using a Request for Proposal vs. Invitation for Bid – PACE Suburban Bus Service’s experience with competitive procurements using an RFP has been positive.¹¹ There is much more flexibility for the grantee when an RFP is used instead of an IFB. The RFP approach gives the grantee an opportunity to establish evaluation criteria for important factors of performance, including such items as preventative maintenance, emergency roadside assistance, repairs, fuel card management services, and accident services. Proposals can be evaluated with the objective of selecting the best overall combination of service quality and price. Negotiations can be held with the offerors in order to secure the best possible proposal and contract terms. The PACE Suburban Bus RFP issued for leasing and maintaining their fleet vehicles may be found in Appendix B.15.

Joint Procurements with State DOT’s – Grantees should inquire with their State Departments of Transportation as to whether it would be feasible to lease vehicles from contracts awarded by the State. These State contracts frequently represent the best possible terms available for vehicle leasing. When pursuing this “piggybacking” approach, grantee personnel must determine if the

State contract contains all the required Federal clauses and certifications required by Federal regulations. Grantees may wish to take the initiative with their State DOT’s to plan ahead for

¹¹ - For information, contact the Purchasing Section Manager at (847) 228-3573.

joint procurements of vehicles in order to assure that their needs are addressed and that the Federal requirements are included when the procurements are initiated. For additional guidance, see Section 6.3.3 - *Joint Procurements of Rolling Stock and “Piggybacking.”*

6.2.1.2 Lease of Heavy Equipment with Operators

Some agencies have found it beneficial to lease, rather than purchase, heavy equipment, such as cranes, with operators.¹² The more important considerations here tend to be operational rather than economic. Advantages to leasing would include such factors as:

- the availability of fully trained and licensed equipment operators;
- the convenience of having the lessor provide the very specialized maintenance services and housing structures for the equipment; and
- the lessor’s assumption of liability in case of accidents.

Joint Agency Procurements - Heavy equipment may be very difficult to obtain on short notice, and longer-term leases, such as three years, may be advisable. In addition, competition may be virtually non-existent. Under these circumstances, agencies might be advised to seek out other agencies in their geographical region in order to conduct a joint procurement for their common needs so as to obtain a more favorable contract than either could procure by themselves.

Labor Laws – Agencies will need to be aware of local or State labor laws, as well as Federal laws if construction is involved (e.g., Davis-Bacon Act), when developing their solicitation document and contract.

Insurance – Insurance requirements will be an important part of the contract terms. Agency procurement personnel should carefully coordinate the insurance provisions with their insurance department or legal specialists. Requirements might include coverage for commercial general liability, auto vehicle insurance, workers compensation, and perhaps, a special railway protective policy. The agency’s insurance specialists should determine specific coverage requirements and amounts.

6.3 ROLLING STOCK

REQUIREMENT
The FTA Master Agreement, MA(12), Section15 (l) defines several requirements for the acquisition of rolling stock:

¹² - For information about New York City’s leasing of cranes with operators contact Stan Grill at (718) 694-4350.

I. Rolling Stock. In acquiring rolling stock, the Recipient agrees as follows:

(1) Method of Acquisition. The Recipient may award a third party contract for rolling stock based on initial costs, performance, standardization, life cycle costs, and other factors, or based on a competitive procurement process in accordance with 49 U.S.C. Section 5326(c).

(2) Multi-year Options. In accordance with 49 U.S.C. Section 5326(b)(1), a Recipient may procure rolling stock using financial assistance appropriated for 49 U.S.C. Chapter 53 using a contract with an option, not to exceed 5 years after the date of the original contract, to purchase additional rolling stock or replacement.

(3) Pre-Award and Post-Delivery Requirements. The Recipient agrees to comply with the requirements of 49 U.S.C. Section 5323 (m) and FTA regulations, "Pre-Award and Post-Delivery Audits of Rolling Stock Purchases," 49 C.F.R. Part 663, and any revision thereto.

(4) Bus Testing. To the extent applicable, the Recipient agrees to comply with the requirements of 49 U.S.C. Section 5323 (c) and FTA regulations, "Bus Testing," 49 C.F.R. Part 665, and any revision thereto.

6.3.1 Buses

6.3.1.1 Competitive Proposals vs. Sealed Bids

Grantee experiences with competitive *Requests for Proposals* (RFP's) for bus procurements indicates that this method may be preferable to the use of sealed bids. When RFP's are used, the grantee has the flexibility to hold discussions with the offerors and to evaluate the proposals and conduct negotiations for the best delivery schedules, warranties, quality/reliability, after market support in terms of parts availability, and the best prices. In other words, grantees can award their contracts on the basis of the best value, with all important factors considered. Some State laws, however, require the use of sealed bidding procedures for buses, in which case grantees would not be able to use competitive RFP's.

Prequalification of systems/components - The Metropolitan Transit Authority (MTA) of Harris County, Houston, TX, completed a large 243 bus procurement which used a two-step sealed bid process. This entailed a prequalification procedure -- "Request for Approved Equals"-- for major systems and components. In Step one, MTA issued a performance type specification identifying all the systems or components which had to be submitted for approval prior to bids. Examples would include: engines, transmissions, door systems, etc. MTA reviewed the submissions in terms of their characteristics, specifications, etc. and determined what systems and components they would accept. MTA then issued a notice to all bidders identifying what components were acceptable, so that all bidders knew beforehand what items were acceptable to bid on. Sealed

bids were then received, and when the low bidder was identified, MTA performed an audit for specification compliance and compliance with Buy America.¹³

6.3.1.2 APTA Standard Bus Procurement Guidelines

The American Public Transit Association (APTA) published the *Standard Bus Procurement Guidelines (SBPG)* in January 1997 as "a model for solicitation of offers and contracts for the supply of transit buses."¹⁴ The SBPG contains suggested terms and conditions regarding the solicitation, the contract document, quality assurance and contractor warranties. A second volume containing technical specifications is under development. Grantees are cautioned, however, that the APTA *Guidelines* may contain terms and conditions which are not consistent with FTA's policies as set forth in FTA Circular 4220.1E. For example, the provisions regarding *advance payments* and *warranties* in the APTA *Guidelines* cannot be adopted without prior FTA waivers.

6.3.2 Rail Cars

There are certain realities in the rail car industry which impact the manner in which rail cars are procured. Transit Agencies buying rail cars tend to do so infrequently, with a number of years between procurements. The technology can be expected to change considerably during the intervening years between these procurements. This fact makes it critical that Agencies do considerable advance planning in order to determine the current state of the art before they formulate their specifications to procure rail cars.

Because there is virtually no standardization in the United States in the area of track gauges, station platform heights, tunnel designs, etc., and because new rail cars must be compatible with existing cars, it is not feasible for Transit Agencies to consolidate procurements of rail cars and use common buys or "piggybacking." While joint purchasing of rail cars is difficult, an agency designing a specification should consult with others who have either recently purchased cars or who are in the process of doing so, and attempt to achieve whatever commonality of components is possible. This will facilitate both joint purchases of parts in subsequent years and the ability to second-source. Another aspect of this problem with non-standardized rail cars is that it results in high one-time design costs for each Agency's procurement. This in turn provides an incentive to buy as many cars as feasible under each solicitation so that the design costs can be amortized over a greater number of vehicles, with a corresponding reduction in unit prices. On a recent MARTA procurement, for example, the unit price was reduced by \$400,000 by increasing the quantity of cars to be procured from 30 (the initially planned number) to 100. This savings was due to amortizing the non-recurring design costs over a larger number of units. Agencies should

¹³ - MTA, Houston, TX. Contact Don Murphy at (713) 739-4843 or Paul Como at (713) 739-4803.

¹⁴ - American Public Transit Association, 1201 New York Avenue, N.W., Suite 400, Washington, D.C. 20005-6141. Copies may be ordered by phone at (202) 898-4089. Technical questions may be answered at (202) 898-4087.

carefully consider the multi-year contracting strategies discussed in Section 2.2 *Long Term Planning*.

Best Practices

MARTA's experience with a recent major rail car procurement offers a number of helpful insights.¹⁵

Competitive proposals - The procurement specifications were subjected to a *peer review* by other Transit Agencies and independent consultants prior to release in the RFP. This gave MARTA the benefit of other Transit Agencies' experiences with more recent rail car procurements. MARTA elected to use a competitive *Request for Proposal* (RFP) approach instead of a sealed bid method, which had been their earlier practice. They were pleased with this decision because it gave them the needed flexibility to discuss various technical approaches for complex items with each of the offerors, and to achieve the "best value," given the different technical approaches offered and the prices proposed for these approaches. "Best value" included expected reliability and maintainability features, such as on-board diagnostics.

MARTA's RFP included a *Proposal Data Requirements List* (PDRL) which defined the format and content of the required proposal information, thereby creating proposal uniformity, which in turn increased the quality and efficiency of proposal evaluation. The proposal evaluation plan, including the scoring mechanism, was carefully developed and tested using several mock proposals before the RFP was issued. Once proposals were received, the proposal evaluation plan and scoring mechanism were adhered to meticulously in order to avoid any appearance of bias. *This kind of rigid adherence to the proposal evaluation plan is a critical requirement for Agencies to observe if they use the RFP methodology.* MARTA's use of individuals outside the Agency to participate on the proposal evaluation committee added an element of objectivity and independence to the process, as well as enhancing the overall experience base of the evaluation team.

MARTA kept the technical and price proposal evaluations separate, so as not to influence the technical evaluators. They also established a "competitive range" following initial proposal evaluations, and held discussions with those companies in the competitive range (those that had a reasonable chance for contract award). Offerors eliminated from the competitive range were to be notified quickly after MARTA's decision so that they could release their teams to other opportunities.

The time required to complete the procurement process was longer using the RFP method than it would have been with sealed bids (IFB). Using an IFB was estimated to take between four and

¹⁵ - MARTA Rail Car procurement, contact Mr. Robert June, Acting Director of Systems Engineering, at (404) 870-3203.

six months from advertising to award, whereas the RFP method took about 13 months from release of the RFP to contract award. Agencies planning to use the RFP method will have to allow for more time than if sealed bids are used, but the final results may be worth the added procurement time.

Future purchases of proprietary parts - Efforts should be made in the original acquisition of rail cars (and buses) to include an "advance agreement" with the supplier concerning the future acquisition of proprietary parts. This could be done as a percentage discount of the list price. The best approach might be to have a one-year contract for the proprietary parts, with a series of four one-year options (to be extended subject to FTA approval). This would enable the agency, at the end of each year, to determine whether the marketplace has changed in terms of the competitive availability of parts formerly only available from the vehicle manufacturer.

6.3.3 Joint Procurements of Rolling Stock and “Piggybacking”

REQUIREMENT

FTA Circular 4220.1E applies to all third party contract actions undertaken by grantees with Federal funds, including actions taken pursuant to the contracts of other entities, such as (1) the exercise of options which have been assigned to the grantee by another entity which awarded the contract initially, (2) the assignment of contracts themselves to a grantee by another entity (under which the grantee will spend Federal funds), and (3) joint procurements with other entities (under which the grantee will spend Federal funds).

Of particular significance are the following provisions of FTA Circular 4220.1E:

7.e. Intergovernmental Procurement Agreements.

1. Grantees are encouraged to utilize available state and local intergovernmental agreements for procurement or use of common goods and services. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications (including Buy America) are properly followed and included, whether in the master intergovernmental contract or in the grantee’s purchase document.¹⁶

¹⁶ - Sub-paragraph (1) looks primarily to State government contracts that allow subordinate government agencies to buy from established schedules akin to the GSA Schedules in Federal practice. FTA believes grantees may buy through these contracts provided all parties agree to append the required Federal clauses in the purchase order or other document that effects the grantee’s procurement. When buying from these schedule contracts, grantees should obtain Buy America certification before entering into the purchase order. Where the product to be purchased is Buy America compliant, there is no problem. Where the product is not Buy America compliant, the grantee will still have to obtain a waiver from FTA before proceeding.

2. Grantees are also encouraged to jointly procure goods and services with other grantees. When obtaining goods or services in this manner, grantees must ensure all federal requirements, required clauses, and certifications are properly followed and included in the resulting joint solicitation and contract documents.¹⁷
3. Grantees may assign contractual rights to purchase goods and services to other grantees if the original contract contains appropriate assignability provisions. Grantees who obtain these contractual rights (commonly known as ‘piggybacking’) may exercise them after first determining the contract price remains fair and reasonable.¹⁸

8.a. Full and Open Competition. All procurement transactions will be conducted in a manner providing full and open competition.

9.i.(1) Evaluation of Options. The option quantities or periods contained in the contractor's bid or offer must be evaluated in order to determine contract award. When options have not been evaluated as part of the award, the exercise of such options will be considered a sole source procurement.

DISCUSSION

Recently, there has been a growing trend amongst transit systems to become creative in the acquisition of rolling stock. The most constructive of these techniques involve advance planning and joint procurement by several systems. FTA encourages this technique. In these joint procurements, the needs of the various transit systems are defined in the solicitation and the manufacturers are asked to bid upon the total known needs of the agencies involved. In other situations, transit agencies will identify an existing contract of another agency and "piggyback" that contract by means of an assignment of contract rights such as an assignment of options. Additionally, there is the occasion where an agency awards an Indefinite Delivery/Indefinite Quantity (ID/IQ) contract and allows other

¹⁷ - Sub-paragraph (2) reflects FTA’s belief that grantees should consider combining efforts in their procurements to obtain better pricing through larger purchases. Joint procurements offer the additional advantage of being able to obtain goods and services that exactly match each cooperating grantee’s requirements. Joint procurements are considered superior to the practice of “piggybacking” since “piggybacking” does not combine buying power at the pricing stage and may limit a grantee’s choices to those products excess to another grantee’s needs.

¹⁸ - Sub-paragraph (3) reflects grantees’ continuing ability to assign contractual rights to others – “piggybacking.” FTA believes it is extremely important that grantees ensure they contract only for their reasonably anticipated needs and do not add quantities or options to contracts solely to allow them to assign these quantities or options at a later date.

agencies to purchase from it. Regardless of the approach used, it is important that grantees be aware of the requirements of FTA Circular 4220.1E with respect to competition, evaluation of options in making the basic contract award, and the existence of a sole-source condition when optional quantities are ordered which were not priced and evaluated as part of the basic contract award process. *It is FTA's policy that the estimated quantities must reflect the immediate or reasonably foreseeable needs of the parties to the solicitation and, in the case of indefinite delivery/indefinite quantity contracts, a minimum and maximum quantity must be stated.*

Best Practices

The streamlining of bus purchases can occur when two or more systems join forces using the same specification, solicitation process, terms and conditions, etc. leading to the purchase of vehicles from the same vendor. This can be accomplished using (1) the services of one lead governmental agency, (2) a consortium, or (3) "piggy-backing." *While all of these mechanisms require advance planning, the first two occur "pre-award," while the latter occurs "post-award."* The advantages of using a consolidated procurement approach include the following:

- Smaller transit systems lack the personnel and the expertise to conduct bus procurements expeditiously, especially in light of Federal requirements. Procurement lead times should be greatly reduced through a consolidated procurement procedure.
- Staff time at the various transit systems and the vehicle manufacturers will be saved by eliminating the redundancy in conducting multiple bidding processes for the same vehicles.
- Quality improvements could result from the buses being manufactured in a more standardized fashion.
- Savings in transit systems' operating costs will be realized from earlier delivery of new buses, as older vehicles with higher operating costs are retired earlier.
- It is to be hoped that larger quantity buying would result in better prices than a number of smaller individual solicitations.
- When common vehicles are purchased, it may result in better overall coordination/learning among transit systems in that they will be using the same vehicles.

Advance Planning--Joint Procurements

Consolidated Procurements - Various governmental agencies may act as a facilitator for the award of *multiple contracts*. This approach is particularly beneficial when dealing with a large

number of grantees. As an example, the New York State Department of Transportation (NYSDOT) has been using the services of its Office of General Services (OGS) for many years to purchase vehicles under FTA's Section 5310 Program. Here, six different types of light duty buses are purchased every year for the 5310 grantees using an OGS bid process based upon specifications developed, in part, by the grantees facilitated by NYSDOT. During the OGS bid process, NYSDOT estimates the number of vehicles to be purchased not only for the 5310 grantees, but also for other public transportation providers in the State. For the 5310 Program, New York State contracts directly with the successful manufacturer. The buses are built and delivered directly to the 5310 grantee along with the title. Other public transportation systems within the state (e.g. 5311 and 5307 grantees) may access these same contracts, contracting directly with the successful manufacturer. By using this contracting process, the efficiencies described previously are maximized.

Consortiums - Consortiums have been used where a number of systems come together to *jointly issue a solicitation and immediately award individual contracts* with the successful bidder.

Given the different types of bus configurations (e.g. diesel/CNG; low floor/ high floor), it may be useful to identify a lead agency for developing a specification for each type of bus configuration. The specifications developed would then be reviewed by the other members of the procuring group, who would provide their comments on the specification to the lead system. The lead system might modify the specification based on the comments received, but if the changes were not in the best interest of the lead system, the changes would be included as options in the bid package. For example, if the lead system wanted roll curtain destination signs, and other systems wanted electronic destination signs, the specification would call for roll curtain destination signs, and electronic destination signs would be included under the options to be priced by bidders as part of the bid package.

The bid advertisement would specifically identify how many buses were being purchased for which transit systems. Differences or options in the specification for each unique system would be identified and prices obtained from the manufacturers for the various options outside of the base specification.

As an example, New York State has a successful history with a CNG consortium involving FTA grants. Six major systems formed a consortium, aided by NYSDOT as a facilitator, to purchase the first CNG buses placed into service in the State. A single solicitation was used, after which each transit system awarded its own contract in accordance with the terms of the solicitation and the winning bid.¹⁹

¹⁹ - NY State DOT (518) 457-8343.

Piggybacking

Piggybacking and Tag-ons- FTA Circular 4220.1E sets forth FTA policy and guidance related to procurements commonly referred to as “piggybacking” and “tag-ons.” These terms are defined in the Circular as follows:

*“Piggybacking” is an assignment of existing contract rights purchase supplies, equipment or services.*²⁰

*“Tag-on” is defined as the addition of work (supplies, equipment or services) that is beyond the scope of the original contract that amounts to a cardinal change as generally interpreted in Federal practice by the various Boards of Contract Appeals. “In scope” changes are not tag-ons. (See “Tag-on” paragraph below for further discussion).*²¹

Circumstances When Piggybacking Is Permissible – There are a number of issues that should be addressed by a grantee before deciding to piggyback another agency’s contract. Grantees must be able to affirmatively determine that the contract to be piggybacked meets Federal requirements. These Federal requirements include compliance with FTA Circular 4220.1E and the *Dear Colleague* Letter C-98-25. Grantees are advised to pay particular attention to the specific issues identified in the Piggybacking Worksheet paragraph below.

²⁰ - FTA has introduced a limited definition of “piggybacking” and, to differentiate vastly different policies, has separated this practice of assigning contractual rights among grantees from joint procurements or other intergovernmental agreements. See Circular, paragraph 7.e.

²¹ - FTA has similarly attempted to limit the definition of “tag-on” and align it with the concept of a “cardinal change” or “out-of-scope change.” FTA believes that earlier attempts to categorize virtually any change in quantity, for example, as a forbidden “tag-on,” failed to account for the realities of the marketplace and unnecessarily limited grantees from exercising reasonable freedom to make those minor adjustments “fairly and reasonably within the contemplation of the parties when the contract was entered into.” *Freund v. United States*, 260 U.S. 60 (1922).

In applying the concept of “cardinal change” to third party contracts, FTA recognizes that this is a difficult concept, not easily reduced to a percentage, dollar value, number of changes, or other objective measure that would apply to all cases. FTA also recognizes that the various Boards of Contract Appeals, Federal courts, and Comptroller General have wrestled with these issues over many years and built an extensive array of case law differentiating in-scope from out-of-scope or cardinal changes. FTA does not imply that the Board of Contract Appeals cases are controlling, only that they will look to their collective wisdom in judging where changes in grantee contracts fall along the broad spectrum between clearly in-scope and clearly out-of-scope changes. It is FTA’s intent to monitor its grantees and oversight contractors to ensure this concept is well understood and uniformly applied, and to issue additional guidance as necessary to assist grantees in exercising this authority.

Before attempting any change in quantity or major items (e.g., buses, rail cars), grantees should review their contract clauses to ensure they allow for such changes. For instance, in Federal practice, the “changes” clause from the Federal acquisition Regulation has been interpreted not to allow changes in quantity of major items. Federal contracting officers use additional clauses specific to this desired flexibility when they anticipate that there may be a need to add quantities of these major items.

Piggybacking Worksheet – A Piggybacking Worksheet may be found in Appendix B.16. The issues referred to in the worksheet that must be evaluated prior to a decision to piggyback another contract are as follows:

1. Have you obtained a copy of the contract and the solicitation document, including the specifications and any Buy America Pre-Award or Post-Delivery audits?
2. Does the contract contain an express *assignability clause* that provides for the assignment of all or part of the specified deliverables? FTA’s policy is that the original solicitation must contain an *express notification* to all bidders that an assignment would be possible under the terms of the contract. Such a notification would put the bidders on notice that they would likely be called upon to deliver all of the deliverable items, both the base as well as the option quantities. The assignment clause would thus be an important factor in the original competitive bidding. If the contract does not contain an express assignability clause, piggybacking is not permitted.
3. Did the Contractor submit the “certifications” required by Federal regulations in accordance with the requirements of this solicitation? See the BPPM Section 4.3.3.2. - *Federally Required Submissions with Offers*. Piggybacking is not permitted when the Contractor has failed to submit the required Federal certifications with its bid.
4. Does the contract contain the clauses required by Federal regulations? See the BPPM Appendix A - *Federally Required and Other Model Contract Clauses*. Note that not all clauses in Appendix A will apply to all contracts – review each clause for applicability to the specific contract to be piggybacked. If a required Federal clause is not included in the contract, piggybacking is not permitted.
5. Were the piggybacking quantities included in the original solicitation; i.e., were they in the original bid and were they evaluated as part of the contract award decision? If not, a *Tag-on is not permitted*.
6. If the contract is an *indefinite quantity contract*, did the original solicitation and resultant contract contain both a minimum and a maximum quantity, which represent the reasonably foreseeable needs of the parties to the solicitation? See BPPM Section 2.2.5.3 – *Indefinite-quantity Contracts*, and the paragraph below *Indefinite Quantity Contracts, Unlimited Options and Piggybacking*.
7. If the piggybacking action represents the exercise of an option provision in the contract, is the option still valid? Options that have expired may not be exercised.
8. Does your State law allow for the procedures used by the original contracting agency; e.g., negotiations vs. sealed bids?
9. Was a cost or price analysis performed by the original procuring agency documenting the reasonableness of the contract price? Include a copy in your files.

10. Does the contract term comply with the five-year term limit established by FTA 4220.1E, paragraph 7.m?
11. Was there a proper evaluation of the bids or proposals? Include a copy of the analysis in your files.
12. What types of changes will you require to be made to the vehicles? For an assignment, only “within scope” (non-cardinal) changes are allowed (e.g., seating fabrics and colors, paint schemes, signage, floor coloring, etc.). For further guidance see BPPM Section 9.2.1-*Contract Scope and Cardinal Changes*.

Indefinite Quantity Contracts, Unlimited Options and Piggybacking – Serious problems arise when agencies issue solicitations with unlimited quantities, which result in open-ended contracts which other agencies then piggyback. This practice creates a number of serious problems; therefore, *unlimited quantities are not permitted*.

- Since the rolling stock manufacturers do not know what the potential orders may be under the contract, they cannot plan their operations nor can they quote prices which reflect the quantities that may be produced.
- Unspecified quantities result in higher unit prices for the procuring agency because manufacturers must use the minimum quantity specified to calculate prices for material, engineering, etc.
- For these reasons, *open-ended, indefinite quantity/indefinite delivery contracts, or contracts with unlimited options are not permitted*. They are not only disruptive to bus manufacturers and their suppliers, who cannot plan their production schedules given the degree of uncertainty that these contracts entail, but they are also counter-productive to the grantee community, which will invariably pay higher prices for items which were not really competed in a “full and open competition.”

6.3.4 Pre-Award and Post-Delivery Reviews for Buy America Act Compliance

REQUIREMENT
<p>The FTA Master Agreement, MA(12), Section 15 (l) (3) defines the following requirements:</p> <p style="padding-left: 40px;">(3) <u>Pre-Award and Post-Delivery Requirements</u>. The Recipient agrees to comply with the requirements of 49 U.S.C. Section 5323 (m) and FTA regulations, "Pre-Award and Post-Delivery Audits of Rolling Stock Purchases," 49 CFR Part 663, and any revision thereto.</p> <p>The FTA <i>Dear Colleague Letter C-97-03</i>, dated March 18, 1997 provides further guidance to grantees on how to comply with the Buy America requirements of the Pre-Award and Post-</p>

Delivery reviews for rolling stock procurements set forth in 49 CFR Part 663. The FTA Administrator's *Dear Colleague* Letter C-97-13, dated August 5, 1997, that amended the March 18, 1997 guidance by removing axles from the required final assembly activities, was subsequently withdrawn by the *Dear Colleague* Letter, C-97-18, dated September 25, 1997, which rescinded the August 5, 1997 guidance by redirecting grantees and manufacturers to follow the March 18, 1997 guidance on final assembly requirements for bus procurements.

DISCUSSION

The FTA Administrator's *Dear Colleague* Letter C-97-03, dated March 18, 1997, outlines the steps that a grantee must take in performing pre-award and post-delivery reviews of rolling stock procurements to ensure their compliance with Buy America Act requirements. This *Dear Colleague* Letter may be found in Appendix A.2 of the BPPM. This letter provides guidance to grantees concerning these reviews. It must be stressed that grantees are to document their reviews and include this documentation in their contract files as evidence that they have performed the required reviews. The file documentation must describe the data and information reviewed by the grantee's personnel and the basis for concluding that the manufacturer has complied with the Buy America Act requirements, including domestic content, final assembly location and final assembly activities. Also, where appropriate, copies of certifications of compliance with or inapplicability of Federal Motor Vehicle Safety Standards should be included in the file.

FTA has also published two manuals that provide detailed guidance to grantees concerning which Buy America certifications and documents are needed to support the procurement process -- from issuance of the solicitation to title transfer, as well as the procedures that the grantee may follow when conducting the pre-award and post delivery reviews. There are also examples of Buy America calculations and responses to frequently asked questions.²²

6.3.5 Warranties

REQUIREMENT

FTA Circular 9030.1C, *Urbanized Area Formula Program: Grant Application Instructions* states the following:

²² - *Conducting Pre-Award and Post-Delivery Reviews for Bus Procurements*. Document No: FTA DC -90-7713-93-1, Rev. B, dated May 1, 1995. *Conducting Pre-Award and Post-Delivery Reviews for Rail Vehicle Procurements*. Document No: FTA DC-90-7713-94-1, Rev. B, dated May 1, 1995. These documents may be obtained from FTA, Office of Program Management at 202-366-4020 or by e-mail at buyamerica@fta.dot.gov.

The FTA Office of Chief Counsel website address for Buy America matters is: http://www.fta.dot.gov/legal/buy_america/14328_ENG_HTML.htm.

Preventive Maintenance. Preventive maintenance, an expense that became eligible for FTA capital assistance for one year with the DOT 1998 Appropriations Act, was established as eligible for FTA capital assistance under TEA-21, so FY 1998 funds and subsequent fiscal year appropriations may be used for preventive maintenance. Preventive maintenance costs are defined as all maintenance costs....²³

Warranty. A warranty that is an industry standard is an eligible capital cost as part of the acquisition of a bus or any capital asset.²⁴

FTA Circular 5010.1C, *Grant Management Guidelines* states the following:

Warranty standards, when part of equipment contracts, should provide for correction of defective or unacceptable materials or workmanship. These should specify coverage and duration and meet currently available industry standards.²⁵

DISCUSSION

"Warranty" means a promise or affirmation given by a contractor to the purchaser regarding the nature, usefulness, or condition of the supplies, equipment or performance of services furnished under the contract. The principal purposes of a warranty are to delineate the rights and obligations of the contractor and the purchaser for defective items and services, and to foster quality performance. The benefits to be derived from a warranty must be commensurate with the cost of the warranty to the purchaser.²⁶

Many transit agencies purchase or procure equipment with warranties. Depending upon the item and the contract language, a manufacturer will then repair or replace any piece of equipment that fails or is otherwise defective during the warranty period, the commitment to repair or replace being the "warranty." FTA's grantees that specify and purchase warranties should appropriately tailor the warranties, including but not limited to remedies, exclusions, limitations and durations.

In many instances an item is customarily warranted in the trade, and, as a result of that practice, the cost of an item to the purchaser will be the same whether or not a warranty is included. In those instances, it would be in the purchaser's interest to include such a

²³ - FTA C 9030.1C, Chapter III, paragraph 4.c.

²⁴ - FTA C 9030.1C, Chapter V, paragraph 9.b.3.

²⁵ - C5010.1C in Chapter II Management of Real Property, Equipment and Supplies, Subsection 3.e(6).

²⁶ - See generally Federal Acquisition regulations at 48 CFR Subpart 46.7 - Warranties.

warranty.²⁷ In some instances, industry associations such as the American Public Transit Association or the American Society for Testing and Materials have developed specifications including warranties that are recognized as “Industry Standard.”

Grantees are encouraged to exercise sound business decisions in structuring broader and more comprehensive warranties than that offered as a matter of trade practice or as an industry standard (i.e., an “extended warranty”) where such warranties are advantageous and cost effective. Such business decisions must be based upon market research and price/cost analysis.

For grant eligibility purposes, FTA had historically treated the customary warranty offered as a matter of trade practice as a *normal* warranty and *extended* warranties differently. This in turn affected their cost eligibility differently.

Prior to 1998, *normal* warranties were eligible *capital* expenses and therefore qualified for 80% Federal participation under capital assistance grants. The Office of Inspector General saw the “extended warranty” as a form of operating expense, impermissible at the time as a capital expense. Hence, *extended* warranties were classified as *maintenance (operating)* expense and as such were ineligible for funding under *capital assistance grants* and were only eligible for 50% Federal participation under *operating assistance grants*.

With the passage of TEA-21 in 1998, FTA revised its policies to reflect the provisions of the new statute. FTA’s new policies are stated in FTA Circular 9030.1C, *Urbanized Area Formula Program: Grant Application Instructions*, dated October 1, 1998.²⁸ Under the new cost eligibility guidelines, *maintenance* is now an eligible *capital expense*, and there is no longer a distinction between *normal* warranties and *extended* warranties, as both are eligible costs. There are, however, procurement considerations and those are discussed below.

With respect to the procurement of warranties, prior to 1998 FTA grant application guidance identified specific warranty time frames as being “normal” for each of the major components of vehicles. In 1998, FTA changed this to allow the grantee--on the basis of its market research--to determine what is customary or “normal.”

Normal warranty costs are eligible for reimbursement under FTA grants to the extent that the grantee determines that they are customary or an industry standard and FTA’s other grant requirements are met such as that contained in FTA’s C4220.1E.

²⁷ - 48 CFR Subpart 46.7 - Warranties.

²⁸ - May be accessed at: http://www.fta.dot.gov/legal/guidance/circulars/9000/433_1152_ENG_HTML.htm.

Similarly, extended warranties are eligible costs to the extent that (1) the grantee determines what form of warranty would be advantageous and cost effective as part of the grantee’s procurement planning effort, and (2) extended warranty costs are evaluated separately and determined to be “fair and reasonable.”

Best Practices

An example of warranty terms is the list developed by APTA in its *Standard Bus Procurement Guidelines – Commercial Terms and Conditions* (October 10, 1997).²⁹ Among the issues addressed in APTA’s suggested warranty provisions are:

- Complete Bus – Suggested Terms
- Body and Chassis Structure – Suggested Terms
- Propulsion System – Suggested Terms
- Major Subsystems – Suggested Terms for Brakes, Destination Signs, HVAC, Door Systems, Air Compressor and Dryer, Wheelchair Lift and Ramp System, etc.
- Exceptions to Warranty – For example, when Procuring Agency has not allowed an “equal” requested by the Contractor, and supplier won’t offer the warranty required by the Procuring Agency;
- Detection of Defects – Schedule for notifying Contractor and Contractor’s response;
- Fleet Defects – Contractor’s duty to implement corrective work program;
- Repair Procedures – When repairs may be made by Procuring Agency and reimbursed by Contractor;
- Warranty after Repairs – Repair parts to have the unexpired warranty period of the original part.

6.4 PROFESSIONAL SERVICES

REQUIREMENT
Professional services other than architectural and engineering services may be obtained through sealed bids, competitive proposals, or (as the contract value warrants) small purchase or micropurchase procedures.

²⁹ - To order this book, call APTA at (202) 496-4800. Document is also available via Internet at: <http://www.apta.com/info/online/index.htm>.

Procurement of Architectural and Engineering Services (A&E). Grantees shall use competitive proposal procedures based on the Brooks Act when contracting for A&E services as defined in 40 U.S.C. Section 541. Other types of services considered A&E services include program management, construction management, feasibility studies, preliminary engineering, design, surveying, mapping and services which require performance by a registered or licensed architect or engineer. . . . This "qualifications based procurement method" can only be used for the procurement of A&E services. It cannot be used to obtain other types of services even though a firm that provides A&E services is also available to perform other types of services. These requirements apply except to the extent any state adopts or has adopted by statute a formal procedure for the procurement of architectural and engineering services. (FTA Circular 4220.1E, Section 9e).

DISCUSSION

Although you may use any of the applicable selection methods described in Chapter 4 and permitted by state law for professional services, the competitive proposal method is the most common for procuring professional services. Special Federal requirements apply to architectural and engineering services. Even though professional services such as legal advice, investment advice, auditing or engineering advice may have been rendered to your agency on a long-standing basis, or without a written contract, or by formal approval at the highest level, such practices do not exempt those services from the requirements for free and open competition, maximum five year terms, and written selection procedures.

Purpose

You have a requirement to contract for a laboratory to provide testing for your agency's drug and alcohol testing program. You cannot afford to take a chance on getting a contractor who has little experience, a poor history of quality control, and an unreliable performance history in terms of chain of custody. If you have to bid this contract, with low price being the deciding element, that is apt to be what you get. Unfortunately, in a few jurisdictions, that is what you may be faced with. However, in most jurisdictions, the state legislatures have wisely enacted a procurement policy that exempts professional and personal service contracts from the strict requirements of the competitive procurement laws. In those states, competitive sealed proposal statutes, mini-"Brooks Act" statutes for architect/engineering and related services, or exemptions from competitive requirements altogether (or a combination of all of the above) have been enacted. The critical point is that your state, either legislatively or through statutory interpretations by the state attorney general or the courts, will allow you some flexibility in buying professional services because it does not make sense "to buy the services of brain surgeon through a low bidder procurement process."

It is important to distinguish between two types of professional services:

- **Statutory Professional Services** - These are services that are clearly spelled out in a statute and procurement process is defined for obtaining these services. These are the mini - "Brooks Act" statutes and include architectural and engineering services. The statute may also include some related services or other services the legislature has determined should be bought in a multi-step procurement process.

In Texas, for instance, the Texas Professional Services Act defines "professional services" as services within the scope of the practice of accounting, architecture, land surveying, medicine, optometry or professional engineering, or are provided in connection with the professional employment or practice of a person who is licensed as a certified public accountant, an architect, a land surveyor, a physician (including a surgeon), an optometrist or a professional engineer.³⁰ Texas has said, as to these contracts or services, that competitive bidding shall not be used and that the selection and award shall be made on the basis of "demonstrated competence and qualifications to perform the service" and for a fair and reasonable price.³¹ For architectural or engineering services, Texas mandates a "Brooks Act" process³² and concludes this Act with the public policy statement that contracts entered into in violation of these provisions are void.³³ In all likelihood, your state will have adopted a public policy on the procurement of statutorily defined professional services that may be similar to the Texas statute and you should be very knowledgeable of that statute.

- **Other Professional Services** - Most states offer you other ways to avoid strict compliance with competitive bidding laws (and, in some states, competitive proposal laws as well) by exempting the procurement of professional or personal services from following competitive requirements. Thus, it is important to know what is considered a professional service for the purposes of this exemption under your state's law. This may vary from state to state. The service usually will involve labor and skills that are predominately mental or intellectual rather than physical or manual and the providers of the service are members of disciplines requiring special knowledge or the attainment of a high level of learning, skill and intelligence.

The exemptions are designed to permit the services of the most qualified, competent and experienced individuals to be obtained and a recognition that these services can seldom be measured with objective criteria. In the absence of a statutory definition, these services may include such professions as attorneys, construction management consultants, insurance brokers,

³⁰ - Texas Government Code, Section 2254.002.

³¹ - Texas Government Code, Section 2254.003(a).

³² - Texas Government Code, Section 2254.004.

³³ - Texas Government Code, Section 2254.005.

physicians, auctioneers, medical laboratory testing, theologians, etc. You must consult your state law on these issues -- unlike the statutory professional services discussed above, most states do not prohibit you from using a competitive process to obtain the services of these other "professionals," they just provide an exemption if you choose to use it.

Best Practices

A&E Services - For the procurement of architectural and engineering services, the FTA and most state laws mandate a qualifications-based procurement process.

Other Professional Services - For the procurement of professional services other than A&E services, you generally have a great deal of flexibility in how you obtain those services. In some cases, you may be able to adequately and objectively define the services required and obtain those services through a competitive bidding process on the basis of low priced bids. In other cases, either because of an inability to adequately and/or objectively define your requirement or because of a limitation of your state's law, the competitive bidding method of procurement may not be possible to be used. In that case, a competitive proposal process may be the best method to use where more subjective requirements can be evaluated and weighed with the price offered to arrive at a properly balanced award decision. Depending upon the statement of work and the estimated dollar value of the procurement, you may be able to effectively and efficiently use the micro-purchase method of procurement (detailed in Section 4.1) or the small purchase method of procurement. As the stewards of public funds, it is always important to remember that you are spending tax dollars and to properly weigh the services you are obtaining against what you are paying for those services.

Finally, it is possible that the professional services you desire may be obtained from only one source and, thus, you will select your professional service provider on the basis of a sole source (noncompetitive) method of procurement. In this case, you must comply with the provisions of Section 9.e of FTA Circular 4220.1E as well as your state law. Again, even though you are negotiating with only one source for these services, your goal should be to obtain a price that is fair and reasonable.

6.5 ARCHITECT - ENGINEER SERVICES

REQUIREMENT
<p>FTA Circular 4220.1E states:</p> <p>8.b. <u>Prohibition Against Geographic Preferences</u> . . . However, geographic location may be a selection criterion in procurements for architectural and engineering (A-E) services provided its application leaves an appropriate number of qualified firms, given the nature and size of the project, to compete for the contract.</p> <p>9.e. <u>Procurement of Architectural and Engineering Services (A&E)</u>. Grantees shall use qualifications-based competitive proposal procedures (i.e., Brooks Act procedures)</p>

when contracting for A&E services as defined in 40 U.S.C. § 1102 and 49 U.S.C. § 5325(b). Services subject to this requirement are program management, construction management, feasibility studies, preliminary engineering, design, architectural, engineering, surveying, mapping, and related services.³⁴

Qualifications-based competitive proposal procedures require that:

- (1) An offeror's qualifications be evaluated;
- (2) Price be excluded as an evaluation factor;
- (3) Negotiations be conducted with only the most qualified offeror; and
- (4) Failing agreement on price, negotiations with the next most qualified offeror be conducted until a contract award can be made to the most qualified offeror whose price is fair and reasonable to the grantee.

These qualifications-based competitive proposal procedures can only be used for the procurement of the services listed above. This method of procurement cannot be used to obtain other types of services even though a firm that provides A&E services is also a potential source to perform other types of services.

These requirements apply except to the extent the grantee's State adopts or has adopted by statute a formal procedure for the procurement of these services.³⁵

9.g Procurement of Design-Build: Grantees must procure design-build services through means of qualifications-based competitive proposal procedures based on the Brooks Act as set forth in Section 9.e when the preponderance of the work to be performed is considered to be for architectural and engineering (A&E) services as defined in Section 9.e.

³⁴ - FTA has expanded this section to better explain the breadth of this statutorily prescribed procurement method. FTA recognizes that most of the services listed (e.g., surveying) are not performed by architectural or engineering services companies. Qualifications-based competitive proposals (i.e., Brooks Act procedures) still must be applied to these procurements because of the statutory directive in 49 U.S.C. § 5325(b).

³⁵ - If a project is jointly funded with FTA and FHWA grant funds, grantees should seek the advice of counsel since the FHWA and FTA statutes differ in when and how the Federal requirements defer to state laws.

Qualifications-based competitive proposal procedures should not be used to procure design-build services when the preponderance of the work to be performed is not of an A&E nature as defined in Section 9.e, unless required by State law.³⁶

The FTA Master Agreement, FTA MA(12), Section 15i – *Architectural, Engineering, Design or Related Services*, requires grantees, when awarding contracts for architectural, engineering, or related services, to accept undisputed audits conducted by other governmental agencies for the purpose of establishing indirect cost rates if such rates are not currently under dispute. This requirement to accept undisputed audits conducted by other governmental agencies originates in 49 U.S.C. § 5325(b). It should also be noted that this language has been interpreted by FTA’s Chief Counsel’s Office as precluding grantees from imposing (requiring) ceilings (or “caps”) on overhead rates in contracts for architect-engineer services.³⁷

DISCUSSION

Selection of Contractor - FTA Circular 4220.1E requires the procurement of A-E services in accordance with the "qualifications based procurement methods" of the Brooks Act. The “A&E services” that must be procured according to the Brooks Act procedures are defined in two statutes: 40 U.S.C. § 1102 and 49 U.S.C. § 5325(b). Both of these statutes must be taken into consideration when deciding what constitutes “A&E services.”

The easiest way to conceptualize the requirements of these two statutes is to first apply the definition in 49 U.S.C. § 5325(b) and determine if the services are “program management, construction management, feasibility studies, preliminary engineering, design, architectural, engineering, surveying, mapping, and related services.” If the services fall into one of these categories, they are services that must be procured pursuant to the Brooks Act.³⁸ If the services do not fall into one of these categories, then the three-part test from 40 USC 1102 must be applied. The three-part test from that statute states:

³⁶ - FTA added this paragraph to explain the requirements that apply to design-build procurements because they involve significant architectural, engineering, or other services that normally require qualifications-based competitive proposals but also include significant work that does not require this extraordinary procurement method. Grantees should determine which portion of the work is predominant and follow the method for that type of procurement. It would normally be expected that the construction portion of a design-build procurement would be predominant and, in that case, normal procurement methods can be used in lieu of qualifications-based competitive proposals (the Brooks Act method).

³⁷ - Letter from G. B. McBride to New York MTA, dated Feb 2, 2001. The issues addressed in this letter may be found on the FTA HelpLine (<http://www.fta.dot.gov/ftahelp>) under the Frequently Asked Questions tab (see Architect & Engineering Contracts).

³⁸ 49 USC 5325(b) demands that Brooks act procedures be used for these services even though they are not routinely done by A&E firms (e.g., surveying) and do not require licensed architects or engineers.

“The term “architectural and engineering services” means-

- (A) professional services of an architectural or engineering nature, as defined by State law, if applicable, which are required to be performed or approved by a person licensed, registered, or certified to provide such services as described in this paragraph;**
- (B) professional services of an architectural or engineering nature performed by contract that are associated with research, planning, development, design, construction, alteration, or repair of real property; and**
- (C) other professional services of an architectural or engineering nature, or incidental services, which members of the architectural and engineering professions (and individuals in their employ) may logically or justifiably perform, including studies, investigations, surveying and mapping, tests, evaluations, consultations, comprehensive planning, program management, conceptual designs, plans and specifications, value engineering, construction phase services, soils engineering, drawing reviews, preparation of operation and maintenance manuals, and other related services.”**

This is the portion of A&E services that relies on indicators such as licensing and whether A&E firms normally do the specific sort of task under consideration. If the function fits within this definition of A&E services, ‘Brooks Act procedures’ apply.

The Brooks Act (40 USC 1102) defines the competitive procedures to be used in the selection of A-E firms, and these procedures will apply to grantee procurements of A-E services unless the grantee's State has adopted formal procurement procedures for A-E services, in which case the State procedures will govern. A qualifications-based selection process must be followed for all A-E procurements regardless of dollar value.

The Brooks Act requires a *qualifications based procurement method* for the selection of A-E firms. Price is excluded as an evaluation factor, and negotiations are conducted with the most qualified firm only. If an agreement cannot be reached on price with the most qualified firm, *negotiations are formally terminated with that firm, thereby rejecting that firm's proposal, and the grantee cannot return to this firm at a later date to resume negotiations.* Negotiations are then conducted with the next most qualified firm. This process continues until a negotiated agreement is reached which the grantee considers to be fair and reasonable.

Negotiating Indirect Costs ³⁹

- A) Grantees must (as a general rule) accept undisputed audits that have been conducted by any Federal or State agency of the consultant's indirect cost rate if the audit report has been developed in accordance with the cost principles contained in the FAR Part 31. However, if the audit is conducted by another State agency, and the grantee can fully document and justify to FTA why the other State agency's audit should not be accepted, then FTA may permit the grantee to conduct its own audit.**
- B) Undisputed audited rates must be used for the purpose of contract estimation, negotiation, administration, reporting and contract payment. This requirement applies to the undisputed audited rates of A&E subcontractors that are performing under cost-reimbursement subcontracts as well as prime contractors.**
- C) If there is more than one audit, the grantee may use whichever audit it wishes. However, as a practical matter, the audits should have virtually identical results if they are conducted in accordance with FAR Part 31. Also, if the audits resulted in different findings, it is likely that someone would be disputing one or more of the audit findings.**
- D) If a consultant has not been audited by any Federal or State government agency, the grantee or State government agency should conduct an audit and become the cognizant agency. However, in the case of a consultant contract involving a very small dollar amount, the grantee should be able to rely on its own cost and price analysis in order to negotiate the contract price.**

³⁹ - The Transportation Equity Act for the 21st Century (TEA-21) imposed regulations affecting the administration of contracts awarded by grantees for architectural and engineering services. The regulations affecting the Federal Highway Administration (FHWA) may be found in 23 U.S.C. § 112 and the corresponding regulations for FTA grantees may be found in 49 U.S.C. § 5325(b). FHWA implemented the TEA-21 requirements its final rule, "Administration of Engineering and Design Related Services Contracts," dated June 12, 2002 (http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2002_register&docid=02-14751-filed). This final rule had been preceded by a Notice of Proposed Rulemaking, "Administration of Engineering and Design Related Services Contracts" published in 65 FR 44486, July 18, 2000 (http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2000_register&docid=00-17774-filed). Because the language in FTA's section of the Code was substantially similar to that of FHWA, FTA's Office of Chief Counsel has interpreted the language of 49 U.S.C. § 5325(b) in a manner that is consistent with the provisions adopted by FHWA in its Notice of Proposed Rulemaking and its final rule. There are several important aspects of these contracting requirements that affect the grantee's administration of A&E contracts:

- E) Many consultant firms have multiple indirect cost rates such as a national or corporate-wide rate, a regional or State rate, and a business segment rate. If a consultant proposes a particular rate such as a regional rate or a rate for a particular service (e.g., design services or construction management), that rate must have been audited by a cognizant Federal or State governmental agency before the grantee would be required to accept it. If another governmental agency's audited rate is not applicable to the contract in question, the grantee may perform its own audit applicable to the unaudited rate. For example, if the consultant has an audited rate for design services but not for construction management services, the grantee does not have to accept the rate proposed for construction management services.
- F) Grantees may not require or impose a cap or ceiling on an A&E consultant's overhead rates even if the consultant agrees to such a cap by contract. The key words here are *require or impose*. In its final rule, Section 172.7(b) – *Audits for Indirect Cost Rate*, FHWA made the following concession in response to a Wisconsin DOT expressed concern that a State may not be able to accept a lower overhead rate freely offered by a consultant firm:
- The FHWA agrees there are many reasons why an overhead rate for a firm may be unusually high for a short period of time. In such cases, a firm may believe that it would be in its best interest to offer a lower rate. The FHWA agrees that a consultant should be free to offer a lower overhead rate than the one determined by a cognizant Federal or State government agency, and that the contracting agency should be free to accept it provided such rate is offered voluntarily by the consultant. Under no circumstances, however, shall a contracting agency require a lowering of the overhead rate.*
- G) Grantees may not negotiate an overhead rate that is fixed for the entire contract, or for any particular fiscal year, and not subject to adjustment based on an audit of actual costs incurred. Grantees may, however, use *provisional billing rates* where a billing rate is established for a particular contract period and is subject to adjustment based on an audit of actual costs incurred for that period.
- H) If the cognizant Federal or State agency for a consultant is behind schedule in finalizing audits and the latest accepted audit of indirect cost rates lags by three or four years, the grantee may use another agency's audit if it was conducted in accordance with the FAR and its findings were undisputed. If an audit has been performed by a private firm in accordance with FAR Part 31 and is undisputed, that audit could also be used. If there are no audits available under these assumed parameters where the cognizant agency is three or four years behind, the grantee may conduct its own audit in accordance with FAR principles to determine the actual overhead rates. Otherwise, the last audit performed by the "cognizant Federal or State" agency would be used.

- I) **Grantees may not use a negotiated overhead rate procedure in lieu of using the actual undisputed and accepted audit by a cognizant Federal or State governmental agency. The reason is that price negotiations on the indirect cost rate or any component thereof can be viewed as an administrative or de facto ceiling prohibited by 49 U.S.C. § 5325(b). Nevertheless, the State has the right and obligation to negotiate a fair and reasonable total price for the contract. Any component of the price, except the indirect cost rate, may be negotiated.**
- J) **FTA has elected to follow the provisions of FHWA in its implementation of TEA-21 contracting requirements for architect-engineer services. FTA is not bound by the FHWA rule, however, and may permit exceptions in compelling and unusual circumstances.**

Best Practices

The basic approach used to select A-E contractors using Brooks Act procedures makes use of *Statements of Qualifications*. This basic approach is outlined below.

Statements of Qualifications Process

Consultant Resource File - Grantees may wish to maintain a *consultant resource file* with the names of A-E firms and their respective disciplines, personnel resources, corporate experience, etc. This file would provide an initial mailing list for issuance of a request for *Contract-Specific Statements of Qualifications*. The initial list of potential offerors that a grantee might maintain would be supplemented by a public announcement of the project, calling for interested A-E firms to respond to a questionnaire from the grantee identifying the firm's basic experience and personnel resources. For an example of a questionnaire used by the Federal Government to identify potential A-E firms who would then be solicited to submit their contract-specific qualifications, see the Federal Standard Form 330 (SF 330), *Architect-Engineer Qualifications*.⁴⁰ The SF 330, Part 2, is the Federal equivalent of a *consultant resource file*. This questionnaire will provide the following types of information about each of the firm's branch offices:

- The location of the company's offices and a point of contact within each office.
- The number of personnel by discipline (e.g., architects, civil engineers, geologists, surveyors, soils engineers, etc.).
- Summary of professional services fees received for each of the last five years.

⁴⁰ - FAR 53.301-330.

- Profile of firm’s project experience for last five years. The questionnaire lists over 100 different types of project codes (airports, tunnels, towers, gas systems, etc.)
- Summary of annual average professional services revenues for last three years showing totals for Federal and Non-Federal work.

Note that the SF 330, Part 2, does not ask the A-E firm to identify specific personnel or approaches that it would propose to use for the specific project that the grantee is advertising. Project specific information would come later in a statement of “Contract Specific Qualifications” (SF 330, Part1) discussed below.

Public Announcements - Agencies must publicize requirements for A&E services in accordance with State law. These notices could be placed in *local newspapers* and in publications such as *Passenger Transport, Engineering News Record, Dodge Report*, etc. These notices should describe the Agency’s requirements and the criteria to be used in the evaluation of A-E qualification statements. The public announcements would advise interested A-E firms to submit expressions of interest to the procurement office. These expressions of interest may take the form of a questionnaire regarding the A-E firm’s basic resources and corporate experience, along the lines of the SF 330, Part 2, used by the Federal Government. From these expressions of interest, and the list of firms identified in the consultant resource file, the grantee can then solicit *Project Specific Qualification Statements* from prospective A-E firms that the grantee judges to have the basic capabilities to perform the project.

Pre-proposal Conference – Pre-proposal conferences are generally used in more complex acquisitions as a means of briefing prospective offerors as to the project requirements as well as the agencies selection criteria. This allows the firms to better understand the agency’s objectives and ask pertinent questions that will help them in preparing their proposals or project specific qualification statements (see below). For further guidance on pre-proposal conferences, see Section 4.3.2.4 - *Pre-Bid and Pre-Proposal Conferences*.

Request for Contract/Project Specific Qualification Statements - Interested A-E firms would be required to submit their *Project Specific Qualification Statements* to the procurement office. For an example of a questionnaire used to solicit project-specific qualifications, see the Federal Standard Form 330 (SF 330), Part 1, *Contract-Specific Qualifications*.⁴¹ The SF 330, Part1, goes beyond the general information requested in the SF 330, Part 2. Part 1 asks the firm to identify (1) the proposed project team, showing all firms and their roles in the project, (2) an organizational chart of the proposed team, showing the names and roles of all key personnel and the firm they are associated with, (3) resumes of all key personnel being proposed for the project, and (4) relevant project experience of each of the proposed team’s firms.

⁴¹ - FAR 53.301-330.

From these Qualification Statements, the grantee's A-E evaluation committee would score and rank the firms on the basis of their technical qualifications. It would be advisable not to have a predetermined cut-off score to determine those firms that are the most qualified. Scoring should be a tool for the individual committee member to determine the relative strengths and weaknesses of the firms being evaluated. Also, it would be best not to determine the most qualified firms by averaging the individual committee member scores. The numerical scores should help each member rank the various firms in order to allow the procurement officer to determine a "short list" for conducting oral presentations and discussions. Once each committee member has ranked the firms (using the published evaluation criteria, the relative weights and scoring system), the committee should meet to discuss the findings of the individual members and reach a consensus on a ranking of the various firms.

Some agencies have found a qualitative (adjective) rating system to be more effective than a numerical scoring system. For example, firms are evaluated with respect to their qualifications statements in each of the evaluation criteria elements as being "excellent," "satisfactory," or "unsatisfactory." After rating each firm's qualifications for each criterion, the committee members then give each firm an overall evaluation rating. The overall ratings for the firms are then compared and the firms with the most "excellent" ratings are short-listed. Whether you use a numerical or qualitative (adjective) rating system, a written narrative by each evaluator justifying their decision should be prepared.

Request for Technical Proposals – If you determine to require detailed technical proposals after the short list has been determined, you will need to establish the evaluation criteria to be used in selecting the successful contractor and to advise the firms of the criteria in your RFP. Criteria will normally involve such matters as the following:

1. **Past Performance** – The solicitation should advise offerors of your approach in evaluating past performance, including evaluating offerors that have no relevant performance history, and should also advise offerors to identify past relevant contracts for efforts similar to your requirement. The solicitation should also allow offerors to provide information on problems encountered on the identified contracts and corrective measures taken. This evaluation should also consider the past performance of key personnel and subcontractors that will perform major or critical aspects of the work. This evaluation of past performance, as one indicator of an offeror's ability to perform the contract successfully, is separate from the responsibility determination discussed in Section 5.1.
2. **Technical Criteria** – Technical factors regarding the specific methods, designs, and systems proposed to be used by the offeror will be considered and they must be tailored to the specific requirements of your solicitation. These factors must represent the key technical areas of importance that you intend to consider in the source selection decision. *Technical factors should be chosen to support meaningful comparison and discrimination between competing proposals.* If the agency has established minimum

standards for determining technical acceptability of proposals, these standards must be clearly set forth in the solicitation.

3. **Key Personnel** – An evaluation of key personnel is often suggested when the procurement involves services or requirements where management of the work is a critical factor in determining its success. Qualifications and experience of key personnel may be an important evaluation factor. Some agencies have required oral presentations by key personnel during which the agency officials may ask these key personnel relevant questions to determine the depth of their knowledge in critical areas.
4. **Specialized Criteria** - Grantees may also want to include specialized criteria such as experience in complying with the Americans with Disability Act requirements and previous work on landmark or historic structures.

Design Competition – The question is sometimes raised as to whether the A&E contractor can be selected on the basis of a conceptual design competition rather than qualifications statements. The Brooks Act would permit grantees to select an A&E firm on this basis. The FAR discusses this approach in Subpart 36.602-1 – *Selection Criteria*, paragraph (b). Of course the FAR is not binding on grantees but the Federal parameters for using design competitions may prove useful to grantees. Grantees will have to consider the payment of proposal stipends to those firms that are requested to submit design proposals.⁴² The amount of the proposal stipend would be uniform for all competitors. It would almost assuredly attract greater competitive interest and should give the grantee title to the proposal design concepts since the proposal is being paid for by the grantee. Against the advantages is the cost to the grantee of paying for the proposals.

Architect-Engineer Selection Committee – When establishing their A-E Selection Committees, agencies will need to appoint members who have specific expertise in the disciplines needed for performing the contract. It would also be well to have a DBE advisor. It may be helpful to appoint some members to this Committee who are organizationally outside the engineering office that will be managing the A-E contract. The problem to be avoided when establishing this Selection Committee is one of “control;” i.e., care must be taken that one office does not control the selection process to the point where only a select group of “favorite” contractors are winning contract awards. This committee performs the initial review of A-E contractor qualifications and determines the rankings.

Developing the Short List – Determination of the *short list* or competitive range of qualified firms with whom oral discussions/presentations will take place should be the prerogative of the procurement officer. The short list should be a number appropriate for adequate competition and

⁴² - Grantees should consider using a two-step procedure in order to narrow the number of firms allowed to submit design proposals (to those with a realistic chance of success) and thus to control the cost to the grantee. Step one might be based on qualifications statements such as are normally used to select A&E firms, from which a limited number of firms would be selected and requested to submit design proposals in step two.

should consist of those firms that have a reasonable chance of getting the award. These firms would then be invited to make presentations to the evaluation committee. Grantees should check their state laws to see if a minimum number of firms is required to be short-listed.

Oral presentations by A-E firms – Having evaluated the qualifications of the A-E firms who submitted detailed qualification statements (or technical proposals), and developed the short list of qualified firms, the A-E Selection Committee would establish a schedule for each firm to make oral presentations, although presentations are not always necessary or appropriate. If discussions are necessary, they can be written or by phone or videoconference. The Committee would advise the firms in advance of any questions the Committee had regarding the firm and its capabilities. These questions would be addressed by the A-E firm at the oral presentation. The Committee may also wish to specify those key personnel of the A-E firm that should present in order to answer the Committee’s questions. It is important that the user organization be comfortable with the actual project managers being assigned to the project, and for this reason the presentations should be made by the firm’s proposed key staff, not by a sales executive.

Final ranking of A-E firms - At the conclusion of the oral presentations, each of the Selection Committee members would perform a final scoring and ranking of the short-listed firms. These final scores would then be discussed, and the procurement officer chairing the panel should strive for consensus – finding a firm that is valued by most members and acceptable to the rest. This process should not be a mechanical “majority-rules” vote. Failure to obtain a consensus can result in internal fighting if the project gets into difficulty, and can even create these difficulties. Once an agreement is reached on the highest qualified firm, that firm is then requested to submit a cost proposal for negotiation of a contract.

Contract Negotiations - The Brooks Act requires a *qualifications based procurement method* for the selection of A-E firms. Price is excluded as an evaluation factor, and negotiations are conducted with the most qualified firm only. If an agreement cannot be reached on price with the most qualified firm, *negotiations are formally terminated with that firm*. Once negotiations are terminated, that firm is irrevocably out of contention for the contract and cannot be brought back in. Negotiations are then conducted with the next most qualified firm. This process continues until a negotiated agreement is reached which the grantee considers to be fair and reasonable.

In-house Cost Estimate - One of the biggest problems noted in FTA Procurement Systems Reviews is the failure of agencies to prepare detailed in-house cost estimates prior to receiving cost proposals. This is especially critical in A-E procurements where there are no competing proposals to provide a comparison. *In order to meaningfully evaluate and negotiate the A-E firm’s cost proposal, it is critical that the grantee’s technical staff prepare a detailed in-house cost estimate (work estimate) of the work required by the A-E firm before the solicitation is issued.* In order to be useful as a tool in evaluating the cost proposal, this in-house estimate needs to be prepared in the same level of detail that the grantee is requiring the A-E firm to submit its proposal. In other words, *the grantee’s technical staff prepares its in-house estimate as if the grantee were the contractor proposing on the contract.* It is also important that grantees require A-E firms to submit their cost proposals in the same format in which the in-house estimate was

prepared. Grantees should consider issuing their Request for Proposal with a sample cost proposal format and a list of position descriptions for each of the direct labor categories used by grantee's in-house cost estimating team. This should allow for a one-for-one comparison of the cost proposal and the in-house estimate, thus facilitating the evaluation and negotiation process.

Terms and Conditions - The RFP should contain all of the agency's required *terms and conditions* (clauses, etc.). This will allow the contractor to address these terms and conditions in its proposal, which can then be discussed at negotiations. The A-E contractor should be advised before it submits its proposal what contract clauses are negotiable and what are not. This will save both the contractor and the grantee a lot of needless effort in discussing non-negotiable terms and conditions. For example, Federally required clauses would not be subject to negotiation and contractors should be so advised before they put their proposals together. Any exceptions taken by the contractor to terms and conditions should be included in the price proposal only. This will avoid influencing the technical evaluation, and it recognizes that contract terms involve risk allocation and therefore cost.

Controlling the Negotiations - An experienced contract specialist who can control the meeting should lead the negotiation team. Resource personnel (engineers, architects, lawyers, cost analysts, etc.) are a valuable resource to the contract specialist for advice, but these personnel should not be the ones making business decisions and committing the agency during the negotiations. Care must be taken that the contractor does not create a situation where the agency's contract specialist and resource personnel become divided in their positions. When the agency's team needs to discuss alternatives or possible concessions during negotiations, they should do so in private caucuses and not in the presence of the contractor. There should be one spokesperson for the agency—the contract specialist—who controls the meeting.

Contract Type – Grantees will need to choose the type of contract that is most appropriate for the scope of work anticipated. BPPM Section 2.4.3 contains a discussion of contract types, including fixed price, cost reimbursement, time and materials, and labor hour contracts. This section should be reviewed for general guidance as to the circumstances when each type of contract may be appropriate.

Indirect Cost Rates - The FTA Master Agreement requires grantees to accept undisputed audits of other Federal or State government agencies for purposes of establishing indirect cost rates that are used for pricing, negotiation, reporting and contract payments. See the paragraph above entitled "Negotiating Indirect Costs" in the DISCUSSION section.

Profit Analysis Factors –Suggested profit analysis factors include:

- Skill and expertise of the A-E personnel required for the work,
- Contract cost risk based on contract type and the degree of risk in completing the work within the negotiated price,

- Potential liability (e.g., third-party liability) of the A-E firm based on the nature of the project,
- Prior performance record of the firm,
- Degree of contractor investment, as it may contribute to more efficient and economical contract performance.

Profit on Change Orders – It is common practice in the construction industry for A-E firms to request increases in their contract fees/profit based on the percentage increase in the cost of the construction contract. Grantees should avoid this practice even though it is commonplace in the construction industry. A-E contractors' profits should be based on their work effort and should never be negotiated on a predetermined percentage basis of a cost increase in the contract whose cost the A-E firm is affecting by its designs. Grantees are prohibited from any type of cost-plus-percent-of-cost contracting. (See BPPM Section 2.4.3.5 - *Cost Plus Percentage of Cost Contracts (CPPC)*).

A-E Role in Construction Change Orders, Claims and Litigation – The A-E firm can provide assistance to the agency in the evaluation of *changes* to the construction contract, whether the changes originate with the agency or with the construction contractor. When changes are suggested by the construction contractor, they must be evaluated, before they are adopted, as to their total system impact on the project, and the A-E is in the best position to do this. The A-E can also prepare a cost estimate of the changed work that the grantee can use to evaluate the construction contractor's price proposal for the change, and the A-E can assist the grantee in negotiations as a technical resource if the grantee so desires. The A-E also has a role to play in the evaluation of *claims* submitted by the construction contractor, although in this case the A-E's participation is somewhat defensive. For example, the A-E may be called in to defend its designs or specifications, or the time the A-E took to review and approve the construction contractor's documentation, and in this case the A-E's efforts may not be reimbursable under the terms of the A-E's contract with the agency. The same would hold true for issues that go to *litigation*—the A-E should be required to defend its designs and specifications without additional charge to the agency. Grantees would do well to make this a subject for an “advance understanding” in their A-E contracts, so that when claims and litigation occur, the parties will understand their respective obligations. If the claims or litigation are caused by the agency's actions, however, and are not due to the A-E's work products or actions, then the A-E can expect to be reimbursed by the agency for its efforts in defending the claim and assisting the agency in the litigation.

ABA Model Procurement Code (MPC) - The American Bar Association's *Model Procurement Code* Section 5-501, *Architect-Engineer and Land Surveying Services*, contains a comprehensive and very worthwhile presentation of procurement procedures using *Statements of Qualifications* for the award of A-E contracts. The *MPC* covers the entire spectrum of events leading to a contract award, with detailed recommendations for the procuring Agency to follow.

Federal Procedures - The Federal Government procedures for procuring Architect-Engineer services may be found in FAR 36.6, *Architect-Engineer Services*.

A-E Contract Provisions

Design within funding limitations - You may wish to include a clause requiring the A-E firm to design the project so that the construction costs do not exceed your budget, an amount that would be stated in the A-E contract as a “design-to-cost” requirement. If the price offered by the low bidder in your construction IFB exceeds the stated limit in the A-E contract, the A-E firm should be responsible to redesign the project at no increase in the price of the A-E contract. If the higher than anticipated construction cost is due to reasons beyond the control of the A-E firm, such as an unexpected increase in the cost of certain materials, then the A-E firm should not be obligated to redesign the project at its own expense. Likewise, if the grantee has required features in the facility that contribute to the bids being in excess of the budget, then a change order to these requirements may be in order, and this too would be something beyond the A-E firm’s ability to control, thus relieving the A-E from redesign responsibility. Grantees will need, therefore, to examine the elements of the construction contractor’s bid to see why the bid price exceeds the “design-to-cost” amount that the A-E was attempting to achieve. An example of a contract clause used by one transit agency follows:

Design Within Funding Limitations⁴³

- A. The contractor shall accomplish the design services required under this contract so as to permit the award for the construction of the proposed facility at a price that does not exceed the estimated construction contract price as set forth in paragraph (C) below. When bids or proposals for the construction contract are received that exceed the estimated price, the Agency shall analyze the reasons for the excessive prices and, if appropriate, the Contractor shall perform such redesign and other services as are necessary to permit contract award within the funding limitation. These additional services shall be performed at no increase in the price of this contract. However, the Contractor shall not be required to perform such additional services at no cost to the Agency if the unfavorable bids, or proposals are the result of conditions beyond the its reasonable control.
- B. The Contractor will promptly advise the Director of Purchasing if it finds that the project being designed will exceed or is likely to exceed the funding limitations and it is unable to design a usable facility within these limitations. Upon receipt of such information the Director of Purchasing will review the Contractor's revised estimate of construction cost. The Agency may, if it determines that the estimated

⁴³ - For additional information, contact Ms. Ann Geter, Central Ohio Transit Authority, at 614-275-5903.

construction cost contract price set forth in this contract is so low that award of a construction contract not in excess of such estimate is improbable, authorize a change in scope or materials as required to reduce the estimated construction cost to an amount within the estimated construction contract price set forth in paragraph (C) below.

- C. The estimated construction contract price for the project described in this contract is \$_____.

Design errors or deficiencies - If the A-E firm's designs, drawings or specifications contain errors or deficiencies, the A-E firm should be required to correct them at no increase in price to the grantee. When errors are discovered during construction, A-E's are generally liable for correction of the drawings at their own cost, and for the difference between what the "correct" construction will cost (as a change order issued to the construction contractor) and what it would have cost in the original contract had the drawings been correct. This includes any tear-out that needs to be done, etc.

State licensing laws also result in many multi-state A-E's that are set up as shell companies to hold licenses in different states. Agencies should obtain a performance guarantee from the parent company in these situations.

A-E Insurance – Agencies should require A-E's to have *General Liability* as well as *Errors and Omissions* insurance. When A-E's propose to be self-insured, agencies must look carefully at the adequacy of the firm's assets before accepting this self-insurance approach. See also BPPM Section 6.6 – *Insurance*.

6.6 INSURANCE

REQUIREMENT
<p>49 CFR Part 19.31 prescribes insurance requirements <i>for grantees who are institutions of higher education, hospitals, and other non-profit organizations</i>:</p> <p><u>Section 19.31 Insurance Coverage</u>. Recipients shall, at a minimum, provide the equivalent insurance coverage for real property and equipment acquired with Federal funds as provided to property owned by the recipient. Federally-owned property need not be insured unless required by the terms and conditions of the award.</p> <p>The Master Agreement, FTA MA(12), Section 20 prescribes insurance requirements <i>for all grantees</i>:</p> <p>a. <u>Minimum Requirements</u>. At a minimum, the Recipient agrees to comply with the insurance requirements normally imposed by its State and local governments.</p>

b. Flood Hazards. To the extent applicable, the Recipient agrees to comply with the flood insurance purchase requirements of section 102(a) of the Flood Disaster Protection Act of 1973, 42 U.S.C. Section 4012a(a), with respect to any Project activity involving construction or acquisition having an insurable cost of \$10,000 or more.

DISCUSSION

The Master Agreement prescribes a requirement that grantees determine what their individual States require in terms of insurance for construction projects, and that grantees ensure that their State insurance requirements, if any, are reflected in third party contracts. The customary approach for insuring against risks associated with work under third-party contracts is to require contractors to purchase and maintain insurance coverages that the grantee specifies within the terms and conditions of the third-party contract. These terms and conditions would specify the type of insurance required, such as *workers compensation, builder's risk, general liability, railroad protective insurance, automobile, errors and omissions*, etc., as well as the amount of the various coverages required.⁴⁴

Under 49 CFR 19.31, institutions of higher education, hospitals, and other non-profit organizations are required to insure real property and equipment, which has been acquired with Federal funds, to the same degree, if any, they insure their own property and equipment. This CFR requirement pertains to property that has been procured and accepted by the grantee, and for which title has vested in the grantee. This type of insurance would be designed to insure against damage or loss to the property itself, and the grantee would procure this insurance directly from an insurance company or through an insurance broker, as part of its annual insurance program for the grantee's property and operations.

Best Practices

Wrap Up Policies

Construction projects - The traditional method of insuring the participants on large construction projects has been for each party (project owner, contractors and subcontractors) to purchase insurance independently to protect themselves from financial losses. In contrast with the traditional method, project owners can elect to purchase a *wrap-up* insurance policy that will cover all the parties involved in the project. Over the past decade, wrap-up insurance has become increasingly popular because of the potential for cost savings. In 1998, for example, wrap-up insurance covered about 300 construction projects nationwide.

⁴⁴ - For an example of a grantee's third-party contract *Insurance Specifications*, contact Mr. Harry Hower, Manager of Insurance, MARTA, at (404) 848-4504.

Grantees may want to consider some type of *wrap up* program for their larger construction projects (those over \$10M). These programs are also known as *owner controlled insurance programs* (OCIP). A *wrap up* or *owner-controlled insurance program* is one in which the Transit Agency procures an insurance program covering all contractors and subcontractors who will be working on a large construction project or a family of related construction projects. Typical insurance coverage would provide for: *workers compensation*, *general liability*, and "*all risks course of construction*" (sometimes referred to as *builder's risk*). This policy is usually purchased through the services of an *insurance broker*, who may have been selected through a competitive RFP. As construction contracts are awarded over the term of the policy period, the names of the contractors and all subcontractors are added to the policy as named insureds.

This approach has been used with excellent results.⁴⁵ Among the advantages noted are:

- The Agency knows for sure that its contractors/subcontractors have adequate insurance coverage.
- For *Workers Compensation* insurance there will be premium discounts because of the size of the policy. When the insurance is bought as one, coordinated policy, rather than procured piecemeal through the individual contractors and subcontractors, there will be premium discounts. The bigger the policy, the bigger the discount. Other premium-saving plans may be available through a wrap-up program. Note that the construction contractors are informed in the Invitation For Bid (IFB) provisions what insurance the Agency is providing, thus permitting the contractors to request credits from their insurance companies for that project. The credits to their premiums can then be passed along to the agency in terms of lower bid prices.
- Newer and smaller construction contractors may have a difficult time getting insurance. This is especially true for small contractors and some Disadvantaged Business Enterprises (DBE's). A *wrap up program* can enhance the Agency's DBE participation, as well as the overall competitive environment for its construction projects, by enabling more contractors to compete for the work.
- In cases where there is a loss and it is not clear which construction contractor or subcontractor is at fault, the injured party does not have to prove which company caused the loss, only that a loss has occurred, and someone in the group was responsible. This greatly reduces the cost of settlement of claims, with obvious benefits to the injured parties.
- By having one insurance company, there will be one insurer's safety engineer with complete authority over the entire job, thus providing better coordination of safety issues.

⁴⁵ - See footnote above.

GAO Study of Wrap Up - In 1999 the U.S. General Accounting Office (GAO) completed a study of six major transit and highway projects using wrap-up insurance.⁴⁶ These projects included several design-build projects financed by FTA and FHWA. The purpose of the report was to identify the advantages and disadvantages of wrap-up insurance over traditional insurance and the factors that can affect the broader use of wrap-up insurance.

GAO found a number of advantages and disadvantages in using wrap-up insurance. Their research findings included the following:

Major advantages include savings from buying insurance “in bulk,” eliminating duplication in coverage, handling claims more efficiently, reducing potential litigation, and enhancing workplace safety. According to insurance industry officials, wrap-up insurance can save project owners up to 50 percent on the cost of traditional insurance, or from 1 to 3 percent of a project’s construction cost, depending on its size. The potential disadvantages of wrap-up insurance include requiring project owners to invest more time and resources in administration. Project owners must hire additional personnel or pay to contract out the management of wrap-up insurance. In addition, Project owners could also have to pay large premiums at the beginning of the project. However, transportation officials said these costs were reasonable.

A number of factors can affect the broader use of wrap-up insurance. Perhaps the most significant barriers are state systems for workers’ compensation that, in some states, effectively prevent wrap-up insurance by greatly reducing its potential cost savings. Another limitation is that a project must be sufficiently large, or contain at least a sufficient amount of labor costs, to make wrap-up insurance financially viable. Finally, some contractors dislike wrap-up insurance because it reduces a contractor’s profits from insurance rebates.

Types of Wrap-Up Insurance Plans - Two types of plans are available to project owners. One is to pay a flat premium (also known as a *guaranteed cost plan*). With this plan, premiums remain fixed for the term of the policy even if a high amount of claims is paid out. This type of plan is common for small and medium-sized businesses. The second type of plan is known as a *loss-sensitive plan*. Here the premiums depend on the policyholder’s claims that are actually paid (called “losses”). A loss-sensitive plan returns a refund for low losses and charges additional premiums for high losses, thus giving the owner an incentive to maximize safe operations. Five of the six major projects studied by GAO used loss-sensitive plans, and all used deductible limits to lower their insurance costs.⁴⁷

⁴⁶ - *Transportation Infrastructure: Advantages and Disadvantages of Wrap-Up Insurance for Large Construction Projects*, B-281480, June 1, 1999. The GAO report may be accessed at <http://www.gao.gov/archive/1999/rc99155.pdf>. Orders may also be placed by calling (202) 512-6000.

⁴⁷ - Some project owners share the insurance rebates with their contractors. For example, the Boston Artery project will share 20 percent of any savings with contractors in the form of safety incentive awards.

Cost Savings - The six projects studied by GAO all claimed cost savings as a result of using wrap-up insurance. Savings claimed ranged from \$2.9 million to \$265 million.⁴⁸ Contributing to these savings were fewer injuries resulting from centralized safety programs, as well as using bulk buying power, avoiding duplicate insurance coverage, using more efficient ways to process claims, and reducing litigation.⁴⁹

Centralized Safety Programs - Under traditional insurance, each contractor and its insurance company may be involved with safety but typically there is no coordinated safety program. Each contractor and subcontractor is concerned only for their segment of the work, and the degree of emphasis placed on safety will vary from contractor to contractor. Additionally, some of these contractors may be poorly monitored by their insurance companies at the job site. In contrast, on projects insured under wrap-up policies, the responsibility for safety will be centralized in one safety team (including one insurance company) that oversees all aspects of safety at a job site, with jurisdiction over all contractors and subcontractors. *It is improved safety, resulting in fewer injuries, that produces much of the potential savings from wrap-up insurance.* When *loss-sensitive plans* are used, the participants have a compelling financial interest to keep injuries to a minimum so as to realize insurance rebates. All six projects studied by GAO claimed reduced injuries as the main basis for their insurance cost savings.⁵⁰

State Insurance Regulations – Because three-fourths of the total insurance cost on a construction project can be for *workers' compensation*, removing it from the project owner's control effectively eliminates most of the cost savings derived from wrap-up insurance.⁵¹ And this is what happens in some states that require contractors to use the state fund for workers' compensation as the primary insurance vehicle for construction projects.⁵² Some states, such as Michigan and Ohio, require owners to obtain prior approval for wrap-up insurance from the state insurance regulator. Michigan also establishes a minimum project cost of \$65 million to be

⁴⁸ - GAO also notes that in 1998 an FTA *Transit Construction Roundtable* study of 18 members indicated that savings of 28 percent were realized by purchasing wrap-up insurance for major projects.

⁴⁹ - GAO noted that large labor-intensive projects with construction costs between \$50 million and \$100 million would be in a better position (i.e., buying power) to obtain wrap-up insurance.

⁵⁰ - The *Boston Artery* project cited a loss ratio of 23 percent compared to a historic national average of about 65 percent for that type of project. The *Michigan Blue Water Bridge* project cited a loss ratio of 10 percent compared to a national average of 50 percent for that type of project.

⁵¹ - Workers' compensation insurance pays claimants in case of injury, disability, or death of employees resulting from work on the job.

⁵² - According to a 1997 GSA study of wrap-up insurance, North Dakota, Ohio, Washington, West Virginia, and Wyoming have a state fund into which all contractors must pay and a project owner cannot obtain separate workers' compensation insurance coverage.

eligible for wrap-up insurance. Oregon limits wrap-up to projects of \$100 million and will not allow “rolling” different projects (combining several projects) under one insurance program.

Developing Insurance Cost Information – In the six projects studied by GAO, owners developed cost information for traditional vs. wrap-up insurance by one of three methods: (1) obtaining two bids – one with insurance included (traditional method) and one with insurance excluded (wrap-up method), (2) removing insurance costs from existing contracts, or (3) relying on brokers’ estimates of traditional insurance.

Helping Small and Disadvantaged Businesses – By providing insurance coverage to all contractors, including small and disadvantaged businesses, owners can often improve the degree of participation by these businesses when they use wrap-up insurance. For example, according to GAO, the Chicago Transit Authority (CTA) achieved about 30 percent participation by DBEs in their 1994 Green Line Rehabilitation Project.

Potential Problems With Wrap Up - Grantees must be cautious about contractors with poor safety records and high insurance costs. They can present a problem when the grantee is using an owner controlled insurance program. Grantees using an OCIP should specify in their solicitation documents (IFB’s, RFP’s) that the bidder’s past performance with respect to safety matters will be considered as part of the grantee’s determination of contractor “responsibility.” See Section 5.1 *Responsibility of Contractor*.

Mega-projects - On mega-projects, grantees should consult with individuals who have had working experience with such projects because there may be opportunities for innovative techniques. Such projects lend themselves to creative negotiations with the insurance companies. FTA regional personnel with such experience may be consulted.⁵³

Equipment and Supplies - Equipment contractors would typically furnish their own insurance coverage for the products they furnish, except that for *installation* of heavy equipment, the *wrap up* policy could apply to the installation work. It would be prudent to do some market research before establishing the insurance limits that you require the suppliers to have in order to bid on your requirement. If the limits are too large, it may restrict competition. By calling the potential bidders in advance, you can determine what insurance limits are reasonable to stipulate in your IFB or RFP.

Hazardous materials - When your project requires the contractor to work with pollutants or any type of hazardous materials (such as asbestos, waste oil products, parts cleaners, etc.,) *be sure to have your insurance specialist and your environmental safety officer review all of the contractor’s policies very carefully to determine if there are any exclusions in any of the policies*

⁵³ - For FTA Region 1 experience with the Central Artery Project in Boston (\$11B), contact Mr. Richard Cole at (617) 494-2395.

for the type of material involved. If there is any question in any of the policies, be sure to have the contractor obtain a rider from his insurance company removing the exclusion.

Architect -Engineer Services - It is the customary practice of Architect-Engineer firms to buy *errors and omissions* insurance to protect against design errors which they may make in the course of their design work. However, there may be situations where the cost of insurance for a particular project is very high. This could occur, for example, when the A-E firm is designing elements of a system, such as a rapid rail system, which will carry large numbers of passengers. This situation carries with it the potential for very high liability in the event of an accident caused by a faulty design of a system element. In some cases, like these, Agencies have decided to indemnify their A-E firm against liability arising from design errors or omissions. When this approach is followed, the A-E firm does not incur the very high cost of *errors and omissions* insurance, which would have been passed along to the Agency as a direct cost on their contract. The money thus saved by the Agency in not having to pay for insurance could then be deposited in a special self-insurance fund from which future claims, if any, would be paid. If there are no accidents and claims, the Agency will realize some extraordinary savings. MARTA elected to use this indemnification approach with its primary engineering consulting contractor, and the resulting savings were about \$300,000 annually. Any decision to adopt this approach is a major one, and obviously entails an element of risk to the Agency. It should be pointed out that in many states it is against public policy for one party to indemnify another against that party's own negligence. Under these circumstances, the type of indemnity described would be illegal.

6.7 ARTWORK

REQUIREMENT
Requirements related to the procurement of artwork in transit projects may be found in the following documents: <ul style="list-style-type: none">a. FTA Circular 9400.1A – <i>Design and Art in Transit Projects</i>, dated June 1995.b. 49 CFR Section 18.34 “Copyrights.”

DISCUSSION

FTA Circular 9400.1A provides FTA policy and guidance for the incorporation of design and art into transit projects funded by FTA.⁵⁴ Some of the more important issues in this Circular concern:

- 1. The eligibility of design and art as eligible costs and guidance for the incorporation of quality design and art into transit projects funded by the FTA.**

⁵⁴ - Grantees may access this Circular at: http://www.fta.dot.gov/legal/guidance/circulars/9000/433_1313_ENG_HTML.htm

- 2. Flexible guidelines for the amount to be spent on artwork; e.g., costs should be at least one half of 1% of construction costs, but should not exceed 5% of construction costs, depending on the scale of the project. Funds spent on the artwork should be adequate to have an impact.**
- 3. The encouragement of artists to interact with the community (residents and businesses) on a project.**
- 4. The Circular has certain specific recommendations for the procurement of art:**
 - a. The selection process should consider use of a variety of artists that are capable of working on the project,**
 - b. Selection of artists should be by a panel of art and design professionals, such as art administrators, artists, curators, and architects,**
 - c. The community surrounding the future facility should participate in the selection process – this may include all levels of participation, including generating ideas for the project, supplying information, attending panel meetings, and being voting members of the panel.**
- 5. Criteria for evaluating specific works of art for commissioning. These would include:**
 - a. quality of art or design,**
 - b. impact on mass-transit customers,**
 - c. connection to site and/or adjacent community; art that relates, in form or substance to the cultures, people, natural or built surroundings, or history of the area in which the project is located,**
 - d. appropriateness for site, including safety and scale,**
 - e. durability of materials,**
 - f. resistance to vandalism, and**
 - g. minimum maintenance.**

Best Practices

The size and nature of the project may affect the choice of procedures to be followed. The guidance here may be most relevant for the procurement of major art-in-transit projects, and is in

fact taken from the experiences of several transit agencies that have procured or are in the process of procuring significant artwork for their transit projects.

Grantees should also be familiar with the ten case studies that FTA has published on its website detailing the “lessons learned” from agencies that faced a diversity of problems and challenges in bringing their art-in-transit projects to a successful conclusion.⁵⁵

A. Maintaining an Artists Registry

Many States and the U.S. General Services Administration (GSA) maintain an Artists Registry. The GSA has developed the “GSA National Artists Registry,” which is a database of several thousand contemporary American artists of all career levels, media, and styles. This registry is used to solicit expressions of interest from artists whose prior work is of the type that GSA is interested in considering for their current project.

The Los Angeles County Metropolitan Transportation Authority (MTA) maintains a mailing list database of professional artists who are interested in working on MTA programs. Inclusion on the mailing list is open to all professional artists on an on-going basis. Artists are solicited from this mailing database for expressions of interest via open ‘Call for Artists.’

It must be pointed out that some Artists Registries require the submission of slides and statements of qualifications by artists. They require considerable time and resources to maintain, and unless acceptance into the registry is juried, the number of unqualified or inappropriate artists may expand to the point of rendering the registry of little or no value. Artists will want to update their slides periodically, and the handling, storage, database entry and return mailing may be prohibitive for all but the largest programs.

A more practical approach for most grantee organizations will be to contact their State’s Arts Council and other organizations that maintain mailing lists of public artists. Examples of these other organizations would include other transit agencies that have been active in public artwork programs⁵⁶ and organizations such as Forecast Public Artworks at www.forecastart.org and Public Art Network (PAN) at www.americansforthearts.org. This approach will provide the grantee with an extensive list of artists at minimal expense to the grantee, and is a much more practical approach for those grantees that have “one-time” artwork projects and limited staffing to maintain an expensive Artists Registry or mailing database.

⁵⁵ - These case studies may be found at:
http://www.fta.dot.gov/transit_data_info/reports_publications/reports/art_in_transit/2260_ENG_HTML.htm.

⁵⁶ - LAMTA, NYMTA, SEPTA, Metropolitan Council of Minneapolis, MN.

B. The “Call For Artists”

The “call for artists” can be published for national coverage in publications such as *Public Art Review*, *Sculpture Magazine*, *Art In America*, *ArtNews*, and *ArtForum*, and regional periodicals such as, *New Art Examiner*, *ArtPapers*, and *ArtWeek* as well as local newspapers. However, the experiences of several agencies in advertising have not been completely satisfactory as far as reaching prospective artists. A far more successful approach has been to develop the names and addresses of the artists to be solicited and send them a notice of the commission opportunities and “Request for Expression of Interest” (RFI) letter. For example, Southeastern Pennsylvania Transportation Authority (SEPTA) hired an art consultant who culled a list of candidate artists from various art foundations. Other agencies have used their State Arts Council as a resource for listings of artists’ names and addresses. As already discussed, some have gone to the expense of maintaining Artists Registries and mailing databases to identify candidates who are contacted directly by mail.

Applicants are normally asked to provide resumes, slides of past work, copies of published reviews/articles about their work, and perhaps a videotape of several minutes length. Artists may also be required to state in their cover letters why they are interested in creating artwork for the project being advertised and why their work is applicable to an outdoor transit environment.

C. Publicizing the Project’s Art Budget

It has been the practice of almost all agencies, including the U.S. GSA, to publish the agency’s budget for the art project at the time the “call for artists” is released and/or the notices are sent to candidate artists soliciting their interest in the project. The reasoning behind the practice is to inform the artists of the relative magnitude of the project and to establish an evaluation and selection process that will be based on a “best-value-for-the- money” type of decision, instead of the more traditional procurement approach of determining the lowest price proposal that will produce an artwork that meets a predetermined specification. In other words, agencies want the very best product that can be obtained with the funds available for art, and there is generally no motivation to reduce the artwork monetary investment by selecting art concepts that are less costly but also may be artistically and aesthetically less rewarding to the agency and the community.

An example of a budget that was published with a “Call to Artists” by the Metropolitan Council, Minneapolis, MN is shown in Appendix B.18 – *Hiawatha Line Public Art & Design Budget*. The Call to Artists listed sixteen commission opportunities, four of which were “Design Only” commissions, while twelve others were listed as “Design, Fabrication, and Installation” commissions. The work involved in the various phases of these commissions was described in the Call to Artists, and the amount of the commission allocated for each phase was as shown in Appendix B.18. Note that every commission included the completion of designs and the preparation of construction drawings within the scope of the initial contract award. The initial contracts did not, however, include the Fabrication and Installation Phases. The agency’s decision to involve any particular artist in the Fabrication and/or Installation Phase was to be

made at the completion of the Design Phase, and was to be related to such considerations as the artwork design, the artist's interest in involvement in the Fabrication and Installation Phase, and the agency's interest in retaining the artist's involvement in those follow-on phases. The involvement of any particular artist in the Fabrication and Installation phase could vary from the complete fabrication and installation of the artwork, fabrication and installation of certain elements of the artwork coordinated with the installation of other elements by the project's Design/Builder, oversight of fabrication and installation by the project's Design/Builder, or in an unusual situation, no involvement at all. Because the involvement of the artist might vary in the Fabrication and Installation Phase, the commission amount associated with this Fabrication and Installation Phase was estimated as a maximum amount in the published budget. The actual amount of any fabrication and installation commission was to be determined by negotiations between the agency and the artist at the conclusion of the Design Phase depending on the artist's degree of involvement.⁵⁷

D. The Selection Process

Timing - One of the most important lessons learned from those who procure artwork is that the artist should be selected and on-board at a very early date in the design process, preferably at the inception of the design process as members of the design team. Starting the artist early with the Architect-Engineer firm that will do the design work enables the artist to have maximum opportunities for the artwork. If you wait until the facility is designed already, or virtually designed, you limit what the artist can do. This is a major consideration. In order to afford the artist the opportunity to collaborate with the A/E firm during the design concept phase, the artist selection process should begin well before the A/E contract is awarded.

Methods of Selecting Artists - There are two basic approaches that have been used to select artists. One involves the selection of a "short list" of candidates from whom competitive proposals are solicited and evaluated. These proposals would typically call for the submission of design concepts, models and/or renderings, cost proposals, etc. The other approach is one in which the evaluation is designed to select the artist instead of selecting the best artwork concept as in the competitive proposal method. This method would produce a "short list" of the most qualified candidates based on artists' resumes, slides of previous artwork products, videotapes, the artist's expected hourly remuneration, etc. Interviews are conducted with the short-list candidates. Selection then follows the interviews. The latter approach does not involve the submission of design concepts for the project being advertised – the preparation of designs comes after artist selection. Nor does this approach call for artists to submit the estimated prices of their artwork because the art has not yet been designed. It does, however, call for the artists to submit their proposed hourly rates of remuneration, which fulfills the requirement of FTA Circular 4220.1E that cost be a factor in the selection process. Note that cost may in fact be the

⁵⁷ - For further information about this public art program contact Mr. David Allen, Metropolitan Council Hiawatha Public Art and Design Manager at (612) 215-8221.

least important factor if the grantee so chooses, but it must be considered in the selection process. A discussion of these two approaches follows.

Review of Qualifications to Determine a “Short List” of Candidates – Having issued the “call for artists” and received letters of interest from candidate artists, most agencies (with participation of an artist selection panel) use a qualifications-based process to narrow down the candidates to a “short list” of four to seven candidates. This process of developing the short list would typically be based on the artist’s past work. Resumes and slides of the artist’s previous work would normally be reviewed (by a selection panel) at this stage of the evaluation process. Artists would not normally be required to submit a “technical proposal” of their conceptual designs for the project at this stage.

Selection after Interviews – Having determined a “short list” of candidate artists, agencies’ approaches to determine the actual winning artist may vary. When the project is just beginning and the artists will be working with the A/E firm to develop design concepts, the typical approach has been to furnish the short-listed artists with the community profile and invite them to be interviewed by the selection panel. The winning artist is then selected on the basis of their past work and the interview process. An example of the artist selection criteria which might be used in this type of scenario would be as follows:

- Aesthetic quality of previously completed art projects and commissions.
- Applicability and suitability of past work to the specific commission opportunities being advertised by the grantee.
- Appropriateness of previously completed artworks to their sites, including safety and scale.
- Durability and suitability of materials, resistance to vandalism and a minimum of maintenance requirements.
- Experience working with the public and neighborhood communities.

Soliciting Competitive Proposals – When the project for which the art is being procured has already been designed and/or built, some agencies invite all of the short listed artists to submit proposals for the project. However, some agencies have required proposals even when the artist selection process is occurring early in the program, before the A/E firm has done any design. When proposals are solicited, and following the submission and evaluation of these proposals, interviews are then scheduled with all of the candidates where the artists may present their proposals and the agency’s selection panel may ask questions of the artists. Artists may be called upon to present a rendering of their proposed artwork (a model or drawings or written descriptions), a cost proposal, and samples of the actual proposed material to be used. The cost proposal (budget) would include costs for design, fabrication, site preparation and installation, insurance, etc. Since the conceptual designs are probably the most valuable contribution that the

artists will make, agencies have often felt it equitable to compensate the artists for this conceptual design work, and they will establish a uniform amount of money to be paid to each artist for his/her work in developing the proposal. For example, SEPTA's procurement of artwork for the Frankford Transportation Center included a "design stipend" of \$2,500 to each of the semi-finalist artists that were asked to provide detailed proposals as part of the final competition. This design stipend of \$2,500 for the semi-finalists was adequate to generate significant interest from nationally acclaimed artists.⁵⁸

This approach of requiring competitive proposals is not without its problems. The first significant problem will be how to involve the community during the process of proposal (conceptual design) development. Community involvement is one of the most important aspects of the design process and FTA Circular 9400.1A notes it as such. It may be difficult for community representatives to deal objectively and interact with the competing artists' designs if competitive proposals are required. Experience has shown that involvement of community representatives at this stage produces problems in having to deal with a number of competing artists and designs, and to reconcile differences of preference with grantee personnel responsible for artist selection. It may be easier and perhaps more constructive for community representatives to work with one artist who has been selected by the grantee prior to conceptual design development, and then serve as a major contributor to the process of design development. This affords the community a design development role during conceptual design work rather an after-the-fact- role with several artists whose design concepts have already been formulated. Another consideration is the adequacy of the design stipend. Will the stipend your agency can afford to pay a number of artists be adequate to compensate them for research, travel, community discussions, conceptual design work, models, renderings, etc.? Consider also whether the rather small stipend and limited time given to the competing artists will produce the best possible design concepts for your project, or whether your agency would be better served with selecting an artist based on the quality and suitability of his/her past work for your application, and giving this artist more resources and time to produce the best design concept after collaboration with community representatives.

E. Contracting with the Selected Artist for Design and Fabrication of the Art

Direct Contract vs. Subcontract with the A/E Firm – Most agencies will normally award a prime contract to the artist, although some have assigned the responsibility of contracting with the artist to the A/E firm that is doing the facility design.

Type of Contract – Because of potential problems with unsuitable accounting systems for cost reimbursement contracts, grantees would be advised to consider contract types for artwork that

⁵⁸ - For further information, contact Elizabeth Mintz, Manager of SEPTA's Art-In-Transit program, at (215) 580-3633.

do not require the auditing of incurred costs. Using a fixed price contract with the artist would usually be preferable to a cost type contract.

Determining a Fair and Reasonable Contract Price – When negotiating a contract price with the selected artist, a cost proposal should be solicited, evaluated and negotiated as with any procurement for professional services; e.g., a contract with an architect to design a facility. It is recommended that the grantee consider whether it is advisable to contract initially for the design phase of the work and postpone negotiations of the cost/price for fabrication and installation until the design is completed and approved. This phased approach would then allow the artist to solicit bids or proposals from fabricators and installers based on a final design and specifications for fabrication and installation. The phased approach will avoid the problem of trying to prematurely guess what the fabrication and installation costs will be prior to completion of the design. A phased approach will also allow the grantee and artist to negotiate fixed price contracts for the design phase and then for the fabrication/installation phase. This in turn will avoid the pitfalls inherent in cost reimbursement contracting with an artist that probably does not have a cost accounting system in place that is suitable for a cost type contract. See the paragraph, Fabrication Costs, below.

Experience with artwork projects would indicate that the design phase of the project could be anywhere between 10% and 20% of the total project budget. For larger projects the design phase costs should represent the lower end of the range (about 10% of the project budget). Smaller projects may have a larger percentage (up to 20%) of the project cost devoted to design activities. The primary reason for this is that the costs of doing community research, including the travel expenses associated with this research and discussions with community representatives, will represent a larger fraction of the total budget for smaller projects than larger ones. This is not to suggest that the design phase contract be negotiated as a percent of the total project budget, only that grantees may wish to apply these historical percents as a “sanity check” when evaluating the artist’s cost proposal for the design phase. Design budget percentages may also be impacted by the artist’s national/international prominence and recognition. Historical experience with architectural fees for a variety of construction projects may prove to illustrate the point being made here. Typical fees for the most artistic type of building projects have been tabulated by the

R.S. Means Company, and the fee percentages range from a high of 16% of total project costs for the smaller projects (\$100K) to a low of 8.3% for the highest dollar value projects (over \$50M).⁵⁹

Determining an Hourly Rate of Compensation - The hourly rate of compensation for the artist should be proposed by the artist in his/her cost proposal (along with the other necessary cost elements), and evaluated by the grantee for reasonableness. The grantee would be advised to

⁵⁹ - R.S. Means Company, *Square Foot Costs*, 23rd Edition, p. 438. However, artists may not necessarily base their compensation rates on providing the same types of professional design services as practiced in an architectural office, but by the track record of unique, one-of-a-kind commissions that respond to curatorial forces operating in the curatorial world of the gallery, the museum and the broader art market.

evaluate the artist's compensation on other projects, as well as what artists working on similar size public art projects have recently and historically been paid by other owners. The objective is to determine a fair and reasonable rate of compensation for the expertise offered by that particular artist, which will be an important part of the overall contract price for the design phase.

Determining a fair and reasonable hourly rate of compensation for the artist may also be extremely helpful if for any reason the grantee decides to terminate the artist's contract for the convenience of the grantee. In the event of a termination, the grantee and the artist will have to negotiate the amount to be paid the artist for his/her efforts up to the point of termination. Having already negotiated an hourly rate of compensation as part of the contract negotiations to determine a price for the design phase contract, the parties will then have an equitable basis to determine the amount to be paid for the artist's efforts prior to the termination.

Payment Provisions – Design Phase – Experience has shown that there may be problems with using standard “progress payment” clauses where payments are made at regular intervals based upon the artist's “progress” towards completion of the artwork design. Measuring progress on an artwork contract may prove to be a very subjective exercise and one that causes problems for the agency and the artist. A preferable approach would be to use a “milestone” payments approach where contractually specified dollar payments are to be made for achievement of specified milestones.

Fabrication Costs - When the artist is to be contractually responsible for fabricating the artwork, the typical scenario will involve a subcontractor that will do the actual fabrication work. It is very important that the artist be required to furnish credible cost and price information regarding fabrication of the artwork so that a realistic contract price can be negotiated with the artist. Grantees should not rely on “guesstimates” from the artist when the contract price is being negotiated. There has been a tendency to use the artist's own cost estimates for fabrication instead of requiring the artist to obtain realistic cost/price proposals from fabricators. This in turn has led to some significant cost overruns when the real fabrication cost becomes known as a result of bids obtained later by the artist. This tends to happen when the agency's contract with the artist is a cost-reimbursement or Time and Material type of contract. Owing to the uncertainties in fabrication costs, agencies may want to contract in “phases” for the artwork project, where the first phase is for work up to submission and agency approval of the artist's design, and a second phase for fabrication and installation support by the artist. This second phase would be priced using competitive bids from fabricators following agency approval of the artist's detailed designs.

Intellectual Property Rights – Ownership of data and copyrights may be negotiated by the grantee and the artist under an arts in transit procurement provided that the Federal interests are protected. 49 CFR 18.34 – Copyrights, requires the grantee to include a clause in the artwork contract that provides FTA a royalty-free, non-exclusive, and irrevocable license to reproduce, publish or otherwise use, and to authorize others to use, for Federal Government purposes, the copyright developed under the grant.

Grantees will want to involve their Legal Counsel in drafting and negotiating the specific provisions related to rights in the Artwork and artwork design concept developed under the contract due to stipulations found in Federal and State laws governing artists' rights. Some of the more important issues that have been addressed (but not necessarily resolved as stated) by those procuring artwork have included the following:

RIGHTS IN ARTWORK DESIGN AND ARTIST'S SUBMITTALS

1. Copyright: Artist's rights in all drawings, documents, studies developed by artist as well as the artwork itself.
2. License for FTA: To reproduce, publish or authorize others to use for Federal Government purposes, in accordance with 49 CFR Section 18.34 – Copyrights.
3. Right of grantee to reproduce (such as photographs and prints): For noncommercial purposes (educational, public relations, arts promotional, etc.) the Artwork submittals and Artwork Design.
4. Right of grantee to distribute reproductions: To the public by gift, sale or other transfer of ownership.
5. Right of grantee to incorporate the Artwork Design into any trademarks or service marks.
6. Grantee rights for commercial uses: To be negotiated with the artist and the terms to be established in a separate written agreement.
7. Artwork Design not to be duplicated by artist without grantee's written consent.
8. Termination of Artist's Rights: Artist's rights terminate with death of Artist and do not extend to Artist's heirs, successors or assigns.

RIGHTS IN THE ARTWORK

1. Ownership: Title to pass to the grantee upon installation and final acceptance of Artwork. Grantee to have right to donate, transfer, or sell the Artwork, or any portion thereof.
2. Display: Grantee to have exclusive right to publicly display the Artwork and to loan the Artwork to others for purpose of public display.
3. Reproductions and Adaptations: Grantee to have license to reproduce (e.g., photographs and prints) and three-dimensional reproductions for noncommercial purposes (educational, public relations, arts promotional, etc.) Examples of such

reproductions for noncommercial purposes might include: books, slides, postcards, posters, tee-shirts, mugs and calendars; reproductions in art magazines, art books, newspapers, videos, film and other visual media of whatever kind; reproductions in or on world wide web sites, internet sites and other electronic media; and reproductions for advertising purposes. Reproductions to contain a credit to the Artist and a copyright notice.

4. **Commercial Uses by Grantee:** Reproductions for commercial uses are only to be made with the mutual consent of the parties; e.g., use of the Artwork as background for advertisements, publications, movies, television, video and other types of productions or entertainment media.
5. **Artist Credit:** All references and all reproductions or adaptations of the Artwork will credit the Artwork to the Artist unless Artists requests to the contrary.
6. **Artist's Commitments:** Artwork Design not to be duplicated by artist without grantee's written consent.
7. **Future Removal, Relocation or Modification:** Grantee to have right to remove the Artwork from the site and relocate to another site.
8. **Repairs and Restoration:** Grantee, after consultation with Artist, shall have the right to determine when and if repairs and restorations are needed. If grantee makes repairs or restoration not approved by Artist, Artist shall have the right to sever its association with the Artwork.
9. **Termination of Artist's Rights:** Artist's rights terminate with death of Artist and do not extend to Artist's heirs, successors or assigns.
10. **Notice of Claims:** Artist to give grantee written notice prior to asserting any claim pertaining to the Artwork, and the grantee shall have not less than 90 days from the date of receipt of claim to cure any such claim.
11. **The right of grantee to incorporate the Artwork into any trademark or service marks to be utilized by the grantee and to register the same in accordance with state or local law.**

F. Contracting for Installation of the Artwork

Many times the installation work will be outside the artist's realm of expertise, especially for work involving construction services. Much artwork installation will be regulated by the Davis-Bacon Act wage requirements. For example, modifications to real property, such as the installation of murals on building walls, will require Davis-Bacon wage determinations. Agencies may wish to contact their regional Department of Labor (DOL) office for assistance in

determining the applicability of the Davis-Bacon Act to their artwork projects. It has been the usual practice to install the artwork under a construction contract competitively bid. For example, the artwork installation may be part of the main construction contract for the project. When this is done, the artist's services are usually obtained to serve in the role of a consultant to the agency or the A/E firm that has responsibility for construction oversight.

Chapter 7

7 - Disadvantaged Business Enterprise

7.1 Comparison of Old vs. New DBE Rules (6/99)

7.1.1 Applicability of DBE Rules to Grantee Programs (2/00)

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7.5 Exemptions and Waivers (6/99)

7.1 COMPARISON OF OLD VS. NEW DBE RULES

REQUIREMENT
<p>The Federal Department of Transportation’s policies concerning Disadvantaged Business Enterprise (DBE) participation in programs of the Federal Transit Administration are set forth in 49 CFR Part 26.</p> <p>49 CFR Part 26 supercedes the old DBE regulation found at 49 CFR Part 23, subparts A and C through E.¹ This Part 26 also supercedes FTA Circular 4716.1A, dated July 26, 1988.</p>

DISCUSSION

Grantees are encouraged to visit the Web sites of the Department of Transportation, Office of Small and Disadvantaged Business Utilization (OSDBU)² and the FTA Office of Civil Rights³ for current information and guidance on DBE regulations and issues. Following is a summary of the old vs. the new DBE rules as found at the Web site of the Office of Small and Disadvantaged Business Utilization (OSDBU).

Setting and Meeting DBE Goals

Old Rule – Part 23	New Rule – Part 26
<p>1. Did not use, but also did not prohibit, quotas. It explicitly authorized set-asides under some circumstances. DOT never penalized recipients for failing to meet goals under the old rule, but the text of the rule did not make the point explicitly.</p> <p>2. Under the old rule, recipients who had less than a ten percent goal had to make a special justification to the Department.</p>	<p>1. The new rule explicitly prohibits the use of quotas. The rule also explicitly prohibits the use of set-asides, except in extreme cases to remedy egregious problems. The rule explicitly provides that recipients will not be penalized for failing to meet their DBE goals.</p> <p>2. The new rule views the statutory 10 percent goal as a nationwide aspirational goal, which does not require that recipients set their goals at 10 percent or any other particular level.</p>

¹ As of January 29, 1999.

² <http://osdbu.dot.gov/>

³ <http://www.fta.dot.gov/office/civil>

<p>3. Under the old rule, overall goals were set to achieve the object of “maximum practicable” use of DBEs. The recipient’s goal could be based directly on the 10 percent national goal or on the recipient’s past achievements.</p> <p>4. The old rule did not mandate the use of race-neutral measures or give them priority. There was no prompt payment requirement.</p> <p>5. Under the old rule, contract goals were required on all contracts with subcontracting possibilities, regardless of whether the contract goals were needed to meet overall goals.</p>	<p>3. Recipients must set overall goals to represent a “level playing field”- the amount of DBE participation they could realistically expect in the absence of discrimination. This goal must be based on demonstrable evidence of the availability of ready, willing and able DBEs to participate on your DOT-assisted contracts. The rule gives recipients substantial flexibility in the methods they choose to set overall goals.</p> <p>4. Recipients must obtain as much as possible of the DBE participation needed to meet their overall goals through race-neutral measures. Race-neutral measures include such activities as training, technical assistance, bonding assistance, business development or mentor-protégé programs, breaking contracts up into pieces that small businesses can readily perform, and awards of prime contracts to DBEs through the regular competitive process. One type of race-neutral measure, a prompt payment provision, will be required for all subcontractors, DBEs and non-DBEs alike.</p> <p>5. Contract goals, or other race-conscious measures, must be used only to obtain DBE participation needed to meet overall goals that cannot be obtained through use of race-neutral measures. Contract goals are not required on every contract. If recipients are over-achieving or under-achieving their overall goals, they have to adjust their use of contract goals.</p>
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<p>6. The old rule employed the same good faith efforts mechanism, but did not emphasize as strongly the mandate that recipients seriously consider good faith efforts showings. There was no reconsideration provision.</p> <p>7. The old rule did not have an over-concentration provision.</p>	<p>6. When there is a contract goal, a bidder must make good faith efforts to meet it. The bidder can do so either through obtaining enough DBE participation to meet the goal or documenting the good faith efforts it made to do so. The rule explicitly provides that recipients must not disregard showings of good faith efforts, and it gives bidders the right to have the recipient reconsider a decision that their good faith efforts were insufficient.</p> <p>7. If a recipient determines that DBE firms are so over-concentrated in a certain type of work as to unduly burden the opportunity of non-DBE firms to participate in this type of work, it must devise appropriate measures to address this over-concentration.</p>
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Certification and Eligibility

<p>Old Rule – Part 23</p>	<p>New Rule – Part 26</p>
<p>1. The old rule did not state a specific standard of proof.</p> <p>2. The old rule did not have either a personal net worth cap for participation or a requirement to submit information concerning personal net worth.</p>	<p>1. Applicants must show that they meet size, group membership, ownership and control standards by a preponderance of the evidence.</p> <p>2. Each disadvantaged individual seeking certification for his or her firm must submit a notarized certification of disadvantage and a statement of personal net worth. If an individual’s personal net worth (excluding his or her principal residence and his or her interest in the applicant firm) exceeds \$750,000, the person is not an eligible DBE owner.</p>

<p>3. The less specific standards of the old regulation were interpreted in many varying ways by recipients and DOT offices, leading to inconsistent and confusing results.</p> <p>4. Formerly, a firm that wanted to work for the State highway agency, two airports, and three transit agencies in the same State had to fill out six application forms and endure six certification processes. This created significant burdens on applicants and used recipient resources inefficiently.</p> <p>5. The old rule suggested, but did not require, administrative due process. Recipients' practices varied, and some recipients' processes were so lacking in due process that substantively valid decisions were overturned by the courts on procedural grounds. Many recipients erroneously believed that the Department required annual recertifications, which burdened DBEs and used recipient resources inefficiently.</p>	<p>3. Ownership and control requirements provide detailed, specific, clarified standards for determining whether to certify firms. The standards are intended to resolve many difficult issues that have arisen in the implementation of the program.</p> <p>4. By February 2002, all the transit, airport, and highway recipients in each State are required to agree on a unified certification program (UCP). This program must be fully operational no later than August 2003. The UCP must provide for "one-stop shopping" for DBE firms applying for certification in each State. The applicant fills out one form, goes through one application process and, if certified, can work as a DBE for any DOT recipient in the State. There will be a single DBE directory for the State. The rule allows recipients substantial discretion about the form the UCP will take in each State.</p> <p>5. In certifying or decertifying firms, recipients must provide administrative due process to ensure that procedures are fair. When a firm is certified, it normally stays certified for three years, but must inform the recipient in writing of any changes that would affect its eligibility and must submit an annual affidavit that such changes have not taken place.</p>
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<p>5. The old rule did not have similar provisions.</p>	<p>4. Recipients must begin to collect data about the bidders on their contracts and subcontracts, for later use in calculating overall goals.</p> <p>5. In the near future, DOT will develop new, uniform program data reporting and certification application forms.</p>
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2.1.1 Applicability of DBE Rules to Grantee Programs

<p>REQUIREMENT</p>
<p>49 CFR § 26.3, <i>To Whom Does This Part Apply</i>, defines the applicability of the new DBE regulations in terms of the types of funds being expended by the recipient. The types of <i>Federal transit funds</i> to which the DBE regulations apply are defined as those authorized by:</p> <ul style="list-style-type: none"> a) Titles I, III, V and VI of ISTEA, Pub. L. 102-240, or b) Federal transit laws in Title 49, U.S. Code, or c) Federal transit laws in Titles I, III, and V of the Transportation Equity Act for the 21st Century (TEA-21), Pub. L. 105-178. <p><i>Stated simply, any third party contract which is awarded by a FTA grantee and which is funded in whole or in part with Federal DOT funds, is subject to the DBE regulations in 49 CFR Part 26. It does not matter whether the Federal funds are for planning, capital or operating assistance, the DBE rules apply. A contract that is funded entirely with local funds – without any Federal funds – is not subject to the DBE requirements under this rule.</i></p>

DISCUSSION

The DBE rules set forth in 49 CFR Part 26 apply to all third party contracts funded in whole or in part with Federal DOT funds. This does not mean, however, that every procurement or contract must be reviewed for DBE participation. The rules give grantees flexibility in when and how they establish individual contract goals. Certain types of procurements (e.g., off-the-shelf commodities) may not have subcontracting opportunities or be appropriate for DBE goal setting. In other words, the DBE rules that apply to all contracts also include guidance and flexibility throughout Part 26 as to how grantees can comply with this part without subjecting every procurement to an individual review for DBE participation. If, for example, the grantee can meet its overall goal through race-neutral means, then contract goal setting will not be necessary. And where goal setting is

necessary, the rules do not require goals for every contract nor that every procurement be reviewed for goal setting purposes.

2.1.2 Definition of Terms

REQUIREMENT

49 CFR §26.5, *What Do The Terms Used In This Part Mean*, contains definitions of the terms used in the new DBE regulation. The definitions of the designated groups included in the definition of “socially and economically disadvantaged individual” are derived from the Small Business Administration’s (SBA) new small disadvantaged business program regulation (13 CFR § 124.3).

DEFINITIONS

- a) *Disadvantaged business enterprise* or *DBE* means a for-profit small business concern: (1) That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged, or, in the case of a corporation, 51 percent of the stock of which is owned by one or more such individuals; and (2) Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.
- b) *Small business concern* means, with respect to firms seeking to participate as DBEs in DOT-assisted contracts, a small business concern as defined pursuant to section 3 of the Small Business Act and Small Business Administration regulations implementing it (13 CFR part 121) that also does not exceed the cap on average annual gross receipts specified in 49 CFR §26.65(b). The cap is currently set at \$16.6 million in average annual gross receipts over the firm’s previous three fiscal years.⁴ This amount is adjusted for inflation by the Secretary of DOT from time to time. It should be noted that a not-for-profit firm may not be certified as a DBE. However, a firm owned by an Indian tribe or Alaska Native Corporation as an entity may be certified as a DBE.
- c) *Race-conscious* measure or program is one that is focused specifically on assisting only DBEs, including women-owned DBEs. The use of contract goals is the primary example of a *race-conscious* measure in the DBE program, but set-asides and price credits for DBEs would also be considered *race-conscious* measures.
- d) *Race-neutral* measure or program is one that is, or can be, used to assist all small businesses. While benefiting DBEs, such programs are not solely focused on DBE

⁴ As of April 1, 1999.

firms. Examples of *race-neutral* measures would include outreach programs, technical assistance programs, and prompt payment clauses, all of which can assist a wide variety of small businesses, not just DBEs. As used in this regulation, *race-neutral includes gender neutrality*.

- e) *Set-aside* means a contracting practice restricting eligibility for the competitive award of a contract solely to DBE firms.
- f) *Personal net worth* means the net value of the assets of an individual remaining after total liabilities are deducted. An individual's *personal net worth* does not include: The individual's ownership interest in an applicant or participating DBE firm or the individual's equity in his or her primary place of residence. An individual's *personal net worth* includes only his or her own share of assets held jointly or as community property with the individual's spouse.
- g) *Socially and economically disadvantaged individuals* means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is –
 - (1) Any individual who a recipient finds to be a socially and economically disadvantaged individual on a case-by-case basis.
 - (2) Any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:
 - (i) “Black Americans,” which includes persons having origins in any of the Black racial groups of Africa;
 - (ii) “Hispanic Americans,” which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;
 - (iii) “Native Americans,” which includes persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians;
 - (iv) “Asian-Pacific Americans,” which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands, Macao, Fiji, Tonga, Kiribati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;
 - (v) “Subcontinent Asian Americans,” which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;

- (vi) Women;
 - (vii) Any individual groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.
- h) *Contract* means a legally binding relationship obligating a seller to furnish supplies or services (including, but not limited to, construction and professional services) and the buyer to pay for them. For purposes of this part, a *lease* is considered to be a *contract*.
- i) *Bidders List* – For the meaning of this term, see Section 7.2.6 – *Bidders List*.

7.2.2 ADMINISTRATIVE REQUIREMENTS

7.2.1 Who Must Have a DBE Program?

REQUIREMENT

49 CFR § 26.21 *Who Must Have a DBE Program?* requires all FTA recipients who receive \$250,000 or more in FTA planning, capital, and/or operating assistance in a *Federal fiscal year*, exclusive of transit vehicle purchases, and transit vehicle manufacturers who must submit an overall goal under Sec. 26.49, to have a DBE program meeting the requirements of 49 CFR part 26.

7.2.2 DBE Liaison Officer

REQUIREMENT

49 CFR §26.25 *What Is the Requirement for a Liaison Officer?* requires grantees to have a DBE Liaison Officer who has direct, independent access to the Chief Executive Officer concerning DBE program matters. The Liaison Officer must be responsible for implementing all aspects of the grantee's DBE program. Grantees must also have adequate staff to administer the DBE program.

DISCUSSION

The DBE Liaison Officer will be responsible for overseeing all aspects of the grantee's DBE program. One area of the Liaison Officer's responsibility would include acting as an advocate for DBE contractors, subcontractors and suppliers of any tier on the grantee's contracts. The DBE Liaison Officer would be available to any DBE who is experiencing difficulties in the payment process or in any other aspect of the contract work. The Liaison Officer would be available to investigate complaints, mediate disputes and recommend remedies to the appropriate grantee management officials.

Some grantees require their contractors to post notices on the job site, (these notices are provided by the grantee), identifying the DBE Liaison Officer, and the contractors must require all subcontractors of any tier to include an appropriate notification in their subcontracts with DBE firms.⁵

7.2.3 Required Efforts On Behalf of DBE Financial Institutions

REQUIREMENT

49 CFR §26.27--*What Efforts Must Recipients Make Concerning DBE Financial Institutions?*-- requires grantees to thoroughly investigate the full extent of services offered by DBE financial institutions in the community, and to make reasonable efforts to use these institutions. Grantees must also encourage prime contractors to use such institutions.

7.2.4 Prompt Payment Mechanisms

REQUIREMENT

49 CFR §26.29--*What Prompt Payment Mechanisms Must Recipients Have?*-- requires grantees to establish a contract clause which requires prime contractors to pay subcontractors for satisfactory performance of their contracts no later than 30 days from receipt of each payment that the grantee makes to the prime contractor. This clause must also require the prompt return of retainage payments from the prime contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed.

This part also discusses other aspects of a prompt payment program that grantees may wish to consider, including:

- (1) Appropriate penalties for failure to comply,
- (2) Prior written consent of grantee for delays in payment of subcontractors,
- (3) Requirement for primes and subcontractors to use alternative dispute resolution mechanisms to resolve payment disputes, and
- (4) Requirement that primes will not be paid for work performed by a subcontractor until the prime ensures that the subcontractor is paid.

⁵ - For an example of a clause, see BART Clause SC7.1.10 "Ombudsperson." Contact BART at (510) 464-6380.

DISCUSSION

Prompt payment provisions are an important race-neutral mechanism that can benefit DBEs and all other small businesses. Under part 26, all grantees must include a provision in their DOT-assisted contracts requiring prime contractors to make prompt payments to their subcontractors, DBE and non-DBE alike. DBE contractors are significantly affected by late payments from prime contractors, and lack of prompt payment constitutes a very real barrier to the ability of DBEs to compete in the marketplace. Non-DBE contractors are also affected by late payment problems. A prompt payment requirement applying to all subcontractors is an excellent example of a race-neutral measure that will assist all subcontractors.

The required contract clause would obligate the prime contractor to pay subcontractors no later than 30 days from the receipt of each payment the grantee makes to the prime contractor. Payment is required only for satisfactory completion of the subcontractor's work. Retainage would have to be returned within 30 days from the time the subcontractor's work had been satisfactorily completed, even if the prime contractor's work had not yet been completed. The number of days specified in the prompt payment clause for the payment of subcontractors may be less than 30 days, at the grantee's discretion. Grantees who already operate under prompt payment statutes may use their existing authority in implementing this requirement. It may be necessary, however, to add to existing contract clauses in some cases (e.g., if existing prompt payment requirements do not cover retainage).

Paragraph (e) of § 26.29 lists a series of additional measures that the regulation authorizes, but does not require, grantees to use. In addition to the mechanisms suggested by §26.29, another possible mechanism that grantees should consider would be declaring a prime contractor to be not responsible for future awards where the contractor has exhibited a pattern of withholding or making late payments to subcontractors.

Best Practices

Following are examples of *prompt payment* and *reporting requirements* (of payments to subcontractors) contract clauses used by the Chicago Transit Authority (CTA).⁶ We would note that the time periods specified in the CTA clause for payment of subcontractors may be too aggressive and may not be feasible for all grantees. In any event, FTA gives grantees discretion in stipulating the payment timelines in their prompt payment contract clauses.

⁶ For further information contact Mr. Donald Mayes, Manager, DBE Contract Compliance at 312-664-7200, ext. 3519.

PROMPT PAYMENT TO SUBCONTRACTORS

- A. The Contractor is required to pay all Subcontractors for all work that the Subcontractor has satisfactorily completed, no later than five (5) business days after the Contractor has received payment from the Authority.⁷
- B. In addition, all Retainage amounts must be paid by the Contractor to the Subcontractor no later than fourteen (14) business days after the Subcontractor has, in the opinion of the VP Construction, satisfactorily completed its portion of the Work.⁸
- C. A delay in or postponement of payment to the Subcontractor requires good cause and prior written approval of the General Manager, Purchasing.
- D. The Contractor is required to include, in each subcontract, a clause requiring the use of appropriate arbitration mechanisms to resolve all payment disputes.
- E. The Authority will not pay the Contractor for work performed unless and until the Contractor ensures that the Subcontractors have been promptly paid for the work they have performed under all previous payment requests, as evidenced by the filing with the Authority of lien waivers, canceled checks (if requested), and the Contractor's sworn statement that it has complied with the prompt payment requirements. Prime Contractors must submit a prompt payment affidavit, (form to be provided by the Authority) which identifies each subcontractor (both DBE and non-DBE) and the date and amount of the last payment to such subcontractor, with every payment request filed with the Authority, except for the first payment request, on every contract with the Authority. (See below for *Prompt Payment Affidavit* developed by CTA).
- F. Failure to comply with these prompt payment requirements is a breach of the Contract, which may lead to any remedies permitted under law, including, but not limited to, Contractor debarment. In addition, Contractor's failure to promptly pay its Subcontractors is subject to the provisions of 50 ILCS 505/9.

REPORTING REQUIREMENTS DURING THE TERM OF THE CONTRACT

- A. The bidder shall, within five (5) business days of contract award, or prior to any work being performed, execute formal subcontracts or purchase orders with the DBE firms included in the bid.⁹ These written agreements shall be made available to the General

⁷ We would note that five business days to pay subcontractors may not be realistic in all cases and could lead to complaints from subcontractors that the grantee enforce this timeframe.

⁸ Other transit agencies have imposed a 30-day requirement for payment of retainage.

⁹ The five-day requirement may not be realistic. Some agencies require subcontracts with DBEs within 60 days of contract award if the contract term is less than one year, or within 30 days of commencement of work for a contract that is for one year or more. The commencement of work rather than initial contract award is more realistic in the case of multiyear contracts where work may not start for another year or so.

Manager, DBE Program, upon request. All contracts between the bidder and its subcontractors must contain a prompt payment clause as set forth in Section VIII herein.

B. During the term of annual contracts, the bidder shall submit regular "Status Reports of DBE Subcontract Payments" in a form acceptable to the Authority. The frequency with which these reports are to be submitted will be determined by the General Manager, DBE Program, but in no event will reports be required less frequently than quarterly. **In the absence of written notice from the General Manager, DBE Program, the bidder's first "Status Report of DBE Subcontract Payments" will be due ninety (90) days after the date of contract award, with additional reports due quarterly thereafter.**

C. In the case of a one-time procurement with either a single or multiple deliveries, a "Status Report of DBE Subcontract Payments," in a form acceptable to the Authority, indicating final DBE payments shall be submitted directly to the General Manager, DBE Program. The information must be submitted prior to or at the same time as the bidder's final invoice to the Authority user department identified in the solicitation. (NOTICE: The original invoices must be submitted directly to the Authority's department identified in the contract documents and the Status Report of DBE Subcontract Payments must be submitted directly to the General Manager, DBE Program.) **Failure to follow these directions may delay final payment.**

D. The address for the General Manager, DBE Program, is: CTA General Manager, Chicago Transit Authority, DBE/EEO Programs/Contract Compliance Department, 567 West Lake Street, Chicago, IL 60661-1498).

PROMPT PAYMENT AFFIDAVIT

Contractor will place a check in the appropriate box below that applies to this payment request.

Re: Payment Request No. _____

I, _____, the _____
Name Title (e.g., President, Vice President, etc.)

of _____ ("Company"), do state the following with regard to payments made under Contract No. _____ ("Contract"):

1. Subcontractors, at the first tier, both DBE and non-DBE, who completed work and were listed for payment on the prior Payment Request No. _____, were paid no later than five (5) business days after Company received payment from CTA.
2. Copies of invoices and cancelled checks for subcontractors at the first tier who were paid under the prior payment request have been delivered or mailed to the DBE Department. In addition, Company has attached to the current Payment Request all lien waivers for prior subcontractor payments and any other documentation required by CTA.

(Failure to attach all required documentation to the Payment Request or forward cancelled checks and invoices to the CTA DBE Department may cause the Payment Request to be rejected by CTA.)

3. All retainage amounts withheld from any subcontractor who satisfactorily completed its portion of the contract work, including punch list items, were paid to the subcontractor(s) no later than fourteen (14) business days after it satisfactorily completed its work, whether or not CTA has paid said retainage amounts to Company. Attach a copy of the cancelled check evidencing payment of each retainage amount.
4. There was no delay in or postponement of any payment owed to a subcontractor, whether periodic payment or retainage amount, except for good cause and after receipt of prior written approval from the CTA Purchasing Agent.

Attach a copy of the written approval from the CTA Purchasing Agent.

Subscribed and sworn to before me this _____ day of _____ 20____ _____ Notary Public	_____ Company Name _____ Signature _____ Print Name Date: _____
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7.2.5 DBE Directory

REQUIREMENT
49 CFR §26.31 <i>What Requirements Pertain to the DBE Directory?</i> requires grantees to compile and update at least annually a directory or source list of all firms eligible to participate as DBEs in the grantee’s programs. The listing for each firm must include its address, phone number, and the types of work the firm has been certified to perform as a DBE. This directory is to be made available to interested persons, including contractors and the public on request.

DISCUSSION

Grantees must maintain directories of DBE firms that have been certified to do work as DBEs. The information required for the Directory includes the name, address, phone number, and the types of work the firm has been certified to perform as DBE. The primary purpose of the Directory is to show the results of the certification process. Since certification under the DBE rule pertains to the various kinds of work a firm’s disadvantaged owners can control, it is important to list those kinds of work in the

Directory. For example, if a firm seeks to work in fields A, B, and C, but the grantee has determined that its disadvantaged owners can control its operations only with respect to A and B, then the Directory would recite that the firm is certified to perform work as a DBE in fields A and B.

The focus of the Directory is intended to be eligibility. A Directory is intended to permit interested firms to contact the DBEs. The Directory is not intended to be a comprehensive business resource manual. For example, information about firms' qualifications, geographical preferences for work, performance track record, capitalization, etc. are not required to be part of the Directory.

7.2.6 Bidders List

REQUIREMENT

49 CFR §26.11 *What Records Do Recipients Keep and Report?* requires grantees to create and maintain a *bidders list*, consisting of all firms bidding on prime contracts and bidding or quoting subcontracts on DOT-assisted projects. For every firm, the following information must be included:

- (1) Firm name,
- (2) Firm address,
- (3) Firm's status as a DBE or non-DBE,
- (4) The age of the firm,
- (5) The annual gross receipts of the firm.

DISCUSSION

The *bidders list* is intended to be a count of all firms that are participating, or attempting to participate, on DOT-assisted contracts. The list must include all firms that bid on prime contracts or bid or quote subcontracts on DOT-assisted projects, including both DBEs and non-DBEs. DOT believes that *bidders lists* are a promising method for accurately determining the availability of DBE and non-DBE firms, and DOT believes that developing bidders data will be useful for grantees. Creating and maintaining a bidders list will give grantees another valuable way to measure the relative availability of ready, willing and able DBEs when setting their overall goals. (See section 7.3.3--*Establishing Overall Goals.*) The DOT regulations do not impose any procedural requirement as to how the data is collected. Grantees are free to choose how they collect the required data. DOT suggests that grantees consider using a widely publicized public notice or a widely disseminated survey to encourage all firms that have bid on the grantees' contracts to make themselves known to the grantee. Once the list of bidders has been created, grantees will need to supplement this information with the age of each firm (since establishment) and the annual gross receipts of the firm (or an average of its annual gross receipts). Grantees can gather this additional information by sending a questionnaire to the firms on the list, or by any

other means that the grantee believes will produce reliable information. The grantee's plan for how to create and maintain the list and gather the required information must be included in its DBE program.

7.2.7 Monitoring Contractors' Performance

REQUIREMENT
49 CFR §26.37 <i>What Are a Recipient's Responsibilities for Monitoring the Performance of Other Program Participants?</i> requires grantees to establish a monitoring and enforcement mechanism to verify that the work committed to DBEs at contract award is actually performed by the DBEs.

DISCUSSION

DOT has avoided prescribing monitoring and enforcement mechanisms for grantees. The Department is looking for grantees themselves to define a strong and effective set of monitoring and compliance provisions in their DBE programs. These mechanisms could be almost anything available to the grantee under Federal, State or local law (e.g., liquidated damages provisions, responsibility determinations, suspension and debarment rules, etc.). The results that grantees must measure consist of payments actually made to DBEs, not just promises at the award stage. Credit toward goals can be awarded only when payments (including, for example, the return of retainage payments) are actually made to DBEs. Grantees must keep a running tally of the extent to which, on each contract, performance had matched promises. Prime contractors whose performance fell short of original commitments would be subject to the compliance mechanisms the grantee had made available.

Best Practices

Suggestions for monitoring contractor's performance would include:

- a) Requiring adequate justification when a prime contractor proposes to substitute a non-DBE subcontractor.
- b) Conducting status reviews of contractor's compliance at regularly scheduled project meetings.
- c) Requiring written monthly or quarterly reviews of the contractor's performance in meeting goals.
- d) Requiring the contractor to propose plans to cure and then implement those plans when the contractor is failing to meet the contract goals.

7.3 GOALS FOR DBE PARTICIPATION

7.3.1 DOT National Goal of 10%

DISCUSSION

There is a statutory goal that not less than 10 percent of the transit funds authorized are to be expended with DBEs. Under the former part 23, the 10 percent goal derived from the statute played a role in the setting of overall goals by grantees. For example, if grantees had a goal of less than 10 percent, the rule required them to make a special justification to FTA. *The new rule makes clear that the 10 percent goal is an aspirational goal that applies to the Department of Transportation on a national level, not to individual grantees or their contractors.* The national goal of 10 percent is not tied to grantees' goal-setting decisions. Grantees set goals based on what will achieve a level playing field for DBEs in their own programs, without regard to the national DOT goal. Grantees are not required to set their overall or contract goals at 10 percent or any other particular level. Nor are grantees required to make a special justification if their overall goals are less than 10 percent.

7.3.2 Use of Quotas and Set-Asides

REQUIREMENT

49 CFR § 26.43--*Can Recipients Use Quotas or Set-Asides as Part of This Program?*-- prohibits the use of quotas for DBEs on DOT-assisted contracts under any circumstances. Set-asides are not permitted except in limited and extreme circumstances to redress egregious instances of discrimination.

DISCUSSION

The DBE program does not set aside a certain percentage of contracts or dollars for a specific set of contractors. The DBE program is a goals program, which encourages participation without imposing rigid requirements of any type.

Quotas are not permitted under any circumstances. A *quota* is a simple numerical requirement that a contractor must meet, without consideration of other factors. For example, if a grantee sets a 12 percent goal on a particular contract and refuses to award the contract to any bidder who does not have a 12 percent DBE participation, either refusing to look at showings of good faith efforts or arbitrarily disregarding them, then the grantee has used a quota. Bidders must make good faith efforts to meet contract goals where such goals are stated, but grantees may not deny a contract to a bidder simply because it did not obtain enough DBE participation to meet the goal. Grantees must seriously consider bidders' documentation of good faith efforts. If bidders make good faith efforts to meet contract goals, they have complied with the intent of the DBE regulations, even if their good faith efforts fail to meet the actual contract goal.

Set-asides* are not permitted except in extreme circumstances to redress extreme instances of discrimination. A contracting agency sets a contract aside for DBEs if it permits no one but DBEs to compete for the contract. Firms other than DBEs are not eligible to bid. A grantee may use a set-aside under part 26 if other methods of meeting overall goals are demonstrated to be unavailing and the grantee has legal authority independent of part 26. DOT believes that set-asides should not be used in the DBE program unless they are absolutely necessary to address a specific problem when no other means would suffice. *Set-asides are a last resort.

7.3.3 Establishing Overall Goals

REQUIREMENT

49 CFR §26.45--*How Do Recipients Set Overall Goals?*-- requires grantees to set an overall goal for DBE participation in their DOT-assisted contracts. The overall goal must be based upon demonstrable evidence of the relative availability of DBEs in the grantee's own market. Section 26.45 also furnishes examples of methods that grantees may use to develop a base figure for the *relative availability of DBEs* in their particular market. The methods suggested include the use of DBE Directories, Census Bureau Data, Bidders Lists, etc. Goals must be submitted to FTA by August 1 of each year. Public participation is also required in establishing an overall goal; i.e., consultation with minority, women's and general contractor groups, and other organizations that could have information concerning the availability of DBEs, as well as public notices announcing the proposed overall goal and its rationale.

DISCUSSION

“Establishing Overall Goals” is not normally a procurement office function DBE. Program administrators should seek guidance from the US DOT Office of Small and Disadvantaged Business Utilization (<http://osdbu.dot.gov/>).

7.3.4 Establishing Overall Goals for Transit Vehicle Manufacturers

REQUIREMENT

49 CFR §26.49--*How Are Overall Goals Established for Transit Vehicle Manufacturers?*-- requires grantees to obtain a certification from each transit vehicle manufacture that desires to bid or propose upon a DOT-assisted transit vehicle procurement that it has complied with the requirements of 49 CFR §26.49. Grantees may, however, with FTA approval, establish project-specific goals for DBE participation in the procurement of transit vehicles in lieu of complying through the overall goal-setting procedures.

DISCUSSION

49 CFR §26.49 requires transit vehicle manufacturers (TVMs) to establish and submit for FTA approval an annual overall percentage goal for DBEs. Part 26 continues the older rule that was in part 23 for TVMs. TVMs must set their goals based on the principles in §26.45. Grantees are required to obtain a certification from TVMs that wish to bid or propose on DOT-assisted transit vehicle procurements, or alternately, grantees may, with FTA approval, establish a project-specific goal for DBE participation.¹⁰ The APTA *Standard Bus Procurement Guidelines* provide a sample *solicitation provision* and a *certification* to be signed by the TVM’s authorized official.¹¹

7.3.5 Means of Meeting Overall Goals

7.3.5.1 Race-Neutral Means

REQUIREMENT
49 CFR §26.51-- <i>What Means Do Recipients Use to Meet Overall Goals?</i> --requires grantees to meet the maximum feasible portion of their overall goal by using <i>race-neutral</i> means of facilitating DBE participation. This Section includes examples of <i>race-neutral</i> steps that grantees can take to facilitate DBE participation. In any year in which the grantee expects to meet part of its goal through race-neutral means and the remainder through contract goals, the grantee must maintain data separately on DBE achievements in those contracts with and without contract goals, respectively. This data must be reported to FTA.

DISCUSSION

One of the key points of the new DBE rule is that, in meeting overall goals, grantees have to give priority to *race-neutral* means. By *race-neutral* means (a term that includes gender neutrality for purposes of this rule), DOT means outreach, technical assistance, procurement process modification, etc.—measures that can be used to increase opportunities for all small businesses, not just DBEs, and *do not involve setting specific goals for the use of DBEs on individual contracts*. Whenever a DBE receives a prime contract because it is the lowest responsible bidder, the resulting DBE participation was achieved through race-neutral measures. Similarly, when a DBE receives a subcontract on a project that does not have a contract goal, its participation was also achieved through race-neutral measures.

¹⁰ - The TVM must certify that it has complied with the DBE goal requirements of § 26.49.

¹¹ - See the APTA *Guidelines* sections 1.1.3.5 for the *solicitation provision* and 1.1.5.7 for the DBE *certification*.

***Race-neutral* means include, but are not limited to, the following:**

- (1) Arranging solicitations, times for the submission of bids or proposals, quantities, specifications, and delivery schedules in ways that facilitate participation by DBEs, and other small businesses. Examples might include the unbundling of large contracts to make them more accessible to small businesses, requiring or encouraging prime contractors to subcontract portions of work that they might otherwise perform with their own forces, etc.;**
- (2) Providing assistance in overcoming limitations such as inability to obtain bonding or financing (e.g., by such means as simplifying the bonding process, reducing the bonding requirements, eliminating the impact of surety costs from bids, and providing services to help DBEs, and other small businesses, obtain bonding and financing;**
- (3) Providing technical assistance and other services;**
- (4) Carrying out information and communications programs on contracting procedures and specific contract opportunities (e.g., ensuring the inclusion of DBEs and other small businesses on grantee mailing lists for bidders; ensuring that prime contractors receive lists of potential subcontractors; provision of information in languages other than English, where appropriate);**
- (5) Implementing a supportive services program to develop and improve immediate and long-term business management, record keeping, and financial and accounting capability for DBEs and other small businesses;**
- (6) Providing services to help DBEs, and other small businesses, improve long-term development, increase opportunities to participate in a variety of kinds of work, handle increasingly significant projects, and achieve eventual self-sufficiency;**
- (7) Establishing a program to assist new, start-up firms, particularly in fields in which DBE participation has historically been low;**
- (8) Ensuring distribution of the DBE Directory, through print and electronic means, to the widest feasible universe of potential prime contractors; and**
- (9) Assisting DBEs and other small businesses to develop their capability to utilize emerging technology and conduct business through electronic media.**

7.3.5.2 Using Contract Goals

REQUIREMENT

49 CFR §26.51(d)--*What Means Do Recipients Use to Meet Overall Goals?*--requires grantees to establish contract goals to meet any portion of their overall goal that they do not project being able to meet using *race-neutral* means. Grantees may use contract goals only on those DOT-assisted contracts that have subcontracting possibilities. Further, grantees are not required to set goals on every DOT-assisted contract, nor must they set a particular contract goal at the level of the overall goal. The particular contract goal will depend on the type of work involved, the location of the work, and the availability of DBEs for the work of the particular contract. However, over the period covered by the overall goal, grantees must set contract goals so that they will cumulatively result in meeting any portion of the overall goal that they do not project being able to meet through the use of race-neutral means. If the grantee's approved projection indicates that it can meet its entire overall goal through race-neutral measures, the grantee must implement its program without setting contract goals during that year.

DISCUSSION

The expressed priority for race-neutral means does not preclude the use of race-conscious measures, such as contract goals, by grantees. The rule simply requires grantees to get the maximum feasible DBE participation through race-neutral measures. The first step is to establish an overall goal and estimate, in advance, what part of the goal can be met through the use of race-neutral measures. This projection is furnished to FTA at the time the overall goal is submitted, and is subject to FTA approval. The grantee uses race-conscious measures (e.g., sets contract goals) to get the remainder of the DBE participation it needs to meet the overall goal. If the grantee expects to meet its entire overall goal through race-neutral means, it could, with FTA approval, implement its program without any use of contract goals.

Grantees will most likely use a combination of race-neutral and race-conscious measures. It is important that grantees keep accurate records of contract awards to DBEs through race-neutral vs. race-conscious methods. The grantee's actual experience with the methods will enable the grantee to adjust the methodology it uses to achieve its future overall goal. For example, a grantee that was consistently able to meet its overall goal using only race-neutral measures would never need to use contract goals.

The new DBE rule makes clear that contract goals are not required on all contracts. The rule also states that the contract goal need not be set at the same level as the overall goal. For example, if a grantee has an overall goal of 11 percent, it does not have to set a contract goal on each contract. Nor does it have to establish an 11 percent goal on each contract where it does set a contract goal. The idea is for the grantee to set contract goals that, cumulatively for the year, bring in enough DBE participation, which when added to the participation expected from race-neutral measures, will result in achieving the overall goal.

Best Practices

When grantees must use contract goals to meet their overall goal, grantees need to review candidate procurements to determine if they afford subcontracting opportunities for DBE participation. DBE subcontracting goals are to be established based on the known availability of qualified DBEs. Grantees can obtain information about certified DBE firms from their State or local government offices as well as the Federal *Small Business Administration*, which publishes a listing of certified small businesses and small disadvantaged businesses on their *Pro-Net* Internet site. *Pro-Net* is an Internet-based database of information on more than 171,000 small, disadvantaged, 8(a) and women-owned businesses. This data is free to the general public as a resource for those seeking contractors and subcontractors and/or partnership opportunities. Businesses profiled on the *Pro-Net* can be searched by SIC codes; key words; location; quality certifications; business type, ownership race and gender; E.I. capability, etc.¹² Of course, grantees are required to maintain a current *Directory* of DBE sources in order to facilitate the establishment of specific contract goals and to assist prime contractors in identifying potential DBE subcontractors. See Section 7.2.5, *DBE Directory*, above.

Grantee initiatives to promote DBE participation in their third-party contracts would include such steps as:

- Reviewing all purchase requisitions above a certain dollar threshold or for certain types of work (e.g. construction and professional services), to determine if DBE goals should be required.
- Encouraging bidders to divide their total requisitions, where appropriate, into economically feasible units, tasks or quantities so as to permit maximum DBE participation.
- Stressing the importance of DBE participation at pre-bid/proposal conferences, with guidance to bidders and proposers as to the resources available to them in locating potential DBE subcontractors and suppliers (such as the Small Business Administration's *Pro-Net* database).
- Targeting advertisement notices in minority-owned newspapers in addition to other newspapers of general circulation.
- Extending the bidding time to allow contractors to identify DBE firms and permit their certification where necessary. This technique was used by the Metro-Dade Transit Agency on a procurement for technical, computer-related end items where DBE firms with the technical expertise to perform the work were not certified.

¹² - The Internet address for Pro-Net is: <http://pro-net.sba.gov/>.

Allowing an extended proposal period permitted the prime contractors to locate DBE subcontractors and have them certified.¹³

- Including a prominent notification in all “Notice of Award Letters” similar to that used by NYC Transit:

*Your contract contains a Disadvantaged Business Goal of _____%. The Contract requires that you submit work schedules and copies of executed subcontract agreements for your proposed DBE subcontractors within 30 days of the date of this award letter. You are further required to submit monthly reports of your progress toward meeting these goals, on the forms provided in the contract documents.*¹⁴

- Inviting your DBE program office to participate on all selection committees for procurements that require DBE subcontracting goals.

7.3.5.3 Evaluation of Contractor Proposals For DBE Participation

DISCUSSION

There are two practices for submission of DBE information by offerors

- **Offerors may be required to complete their DBE submissions, including either the list of proposed DBE subcontractors and amounts, or the proof of good faith efforts, with their offers. This approach is typical of professional service contracts; or**
- **Offerors may be required only to promise compliance with the program in their offers, postponing submission of the list of subcontractors (or proof of good faith efforts) until determination of the apparent low bidder.**

When determining compliance with DBE requirements, two scenarios are possible:

- **The proposer/bidder submits information indicating that the DBE goals will be met; or**
- **The proposer/bidder submits information indicating that the DBE goals will not be met.**

The following are best practices to follow for the two scenarios:

¹³ - Contact King Elliott, Metro-Dade Transit Agency, 111 N.W. First St., Suite 910, Miami, FL 33128 at (305) 375-3634.

¹⁴ New York City Transit. Contact Stan Grill at (718) 694-4350.

Scenario 1: Proposer/bidder submits information that the DBE goals will be met**Required Information** - The information submitted by the offeror must include

- Names of DBE subcontractors/suppliers participating in the contract. DBEs must be eligible (those that are currently certified or that can be certified prior to award);
- A description of the work each DBE is to perform or the products to be provided by the DBE, with an indication of the percentage of the work to be done by the DBE's own work forces, as compared with that which will be subcontracted by the DBE to other DBEs or non-DBEs; and
- The dollar value of each proposed DBE subcontract, including the dollar values of subcontracts to be awarded by the DBE subcontractor.

Counting DBE Participation - Having received the above information, verify the counting of DBE participation towards the goal using the criteria set forth above in section 7.3.5.5, *Counting DBE Participation Toward the Goal*.

If the goal has been met satisfactorily, the award process can continue. If the goal has not been met even though the offeror stated that it will, you should assess the cause for differing conclusions; notify the offeror and seek additional information, or consider documentation of good faith efforts as provided by your DBE program and procedures.

- If you have required evidence of compliance from all offerors with their offers, giving the offeror an additional opportunity may, depending on your program and procedures, appear to give the offeror an unfair chance to re-evaluate its offer after submission. You apparently have either a mistake or an offer that does not comply with the terms of your solicitation. In the former case, you should follow the guidance on mistakes in Section 4.4.5, "Bid Mistakes." In the latter case, you may work with the offeror to reconcile the difference if your DBE program provides for that opportunity; if your program provides it, all offerors could have expected the opportunity and it would not give the offeror a gratuitous or unfair second chance to evaluate its offer.
- However, if you requested evidence be submitted only after selecting the apparent awardee, you may work freely with the offeror to reconcile the discrepancy, as all offerors should expect the opportunity to provide information regarding responsibility and similar determinations made prior to award.

If these steps conclude with the offeror meeting the goal or demonstrating good faith efforts to meet the goal, you can proceed with the award. If these steps conclude without the offeror meeting the goal or demonstrating good faith efforts to meet the goal, you can eliminate the offer and proceed to the next ranked offer.

Scenario 2: Offeror submits information that the DBE goals will not be met.

Required Information - Documentation of good faith efforts by the proposer/bidder is required in all cases where the proposer/bidder fails to meet the stated goal for DBEs. As discussed above, the solicitation may require that good faith efforts be accomplished prior to bid opening or that good faith efforts be accomplished prior to the receipt of best and final offers. Where the shopping period is permitted after final submission of offers, good faith effort requirements are established accordingly.

Your agency's DBE program should include guidelines for determining and evaluating good faith efforts by proposers/bidders. Criteria for determining whether a good faith effort was made can include those factors discussed in section 7.3.5.4--*Good Faith Efforts to Meet Contract Goals*.

If the proposer/bidder has satisfactorily demonstrated good faith efforts, the award process must continue. If not, the offer should not be accepted, and you may proceed to the next best offer (next lowest bid, or next highest score proposal, depending on your agency's DBE program components). In either case, the proposer/bidder's good faith effort documentation, as well as your written evaluation of that material, are important entries in the contract file. This is a potential protest area and should be well-documented.

7.3.5.4 Good Faith Efforts to Meet Contract Goals**REQUIREMENT**

49 CFR §26.53--*What Are the Good Faith Efforts Procedures Recipients Follow?*-- requires grantees to award a contract that requires a DBE goal to a bidder/offeror who has made *good faith efforts* to meet the goal. A *good faith effort* is defined as one where the bidder:

- (1) Documents that it has obtained enough DBE participation to meet the goal; or
- (2) Documents that it made adequate good faith efforts to meet the goal, even though it did not succeed in obtaining enough DBE participation to do so.

Appendix A to Part 26 – *Guidance Concerning Good Faith Efforts*, provides grantees with suggested types of actions that they should consider when making judgments as to whether bidders/offerors have used good faith efforts. Grantees are specifically prohibited from ignoring bona fide good faith efforts.

It follows from the above that grantees, in a negotiated procurement, may not give extra credit (higher evaluation scores) to an offeror's proposal if it exceeds the grantee's subcontracting goal, nor less credit (lower scores) to a proposal that cannot achieve the full DBE goal. The DOT requirement is that the offeror make good faith efforts to meet the goal, and if this is demonstrated by the offeror the grantee cannot penalize the offeror in the proposal evaluation and contract award process.

If a grantee determines that an otherwise successful bidder/proposer has failed to meet the good faith efforts requirement of this Part, the grantee must provide the bidder/proposer an opportunity for *administrative reconsideration*. The requirements that grantees must follow in the administrative reconsideration process are outlined in 49 CFR § 26.53(d).

DISCUSSION

The types of actions that grantees should consider as part of the bidder's good faith efforts would include, but not be limited to, the following:

- (1) Adequate solicitation of DBEs (through all reasonable and available means), with sufficient time for DBEs to respond to the solicitation;**
- (2) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved;**
- (3) Providing interested DBEs with adequate information about the plans, specifications and requirements of the contract in a timely manner;**
- (4) Negotiating in good faith with interested DBEs. The fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract goal, as long as the costs are reasonable. Prime contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.**
- (5) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities.**
- (6) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the grantee or contractor.**
- (7) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.**
- (8) Effectively using the services of available minority/women community organizations and other organizations to provide assistance in the recruitment and placement of DBEs.**

In determining whether a bidder has made good faith efforts, grantees may take into account the performance of other bidders in meeting the contract goal. For example, if the apparent successful bidder failed to meet the goal, but meets or exceeds the average DBE participation obtained by other bidders, grantees may view this as evidence of the bidder having made good faith efforts.

The CFR allows discretion to grantees in when they require bidders/proposers to submit their good faith efforts documentation. This may be required: (a) as a matter of responsiveness with initial bids under sealed bid procedures; (b) as a matter of responsiveness with initial proposals under contract negotiation procedures; or (c) as a matter of responsibility at any time before the grantee commits itself to the performance of the contract by the bidder/proposer.¹⁵

In those procurements where bidders/proposers are required to submit their DBE participation information and good faith efforts with the initial bid/proposal as a matter of responsiveness, they are to be evaluated on the basis of that information, and may be rejected if the information presented is not satisfactory. (See however, the requirement for administrative reconsideration noted above in the Requirements block.) During the course of the negotiation process, changes may be made to the contract scope that affect either the need for some DBE subcontractors or the level of their participation. In that event, the agency should request that the proposer adjust its subcontract plan to maintain or enhance the DBE participation, and should require each proposer to submit a final DBE participation plan as part of its Final Proposal Revision (Best and Final Offer).

Best Practices

Following is a solicitation provision used by the Chicago Transit Authority (CTA) describing the types of actions that CTA would consider as demonstrating *good faith efforts* on the part of a bidder.¹⁶

GOOD FAITH EFFORTS

In order to be responsive, a bidder must make good faith efforts to meet the DBE participation goal set forth in the contract. The bidder must document the good faith efforts it made in that regard. Thus, the Bid submitted to the Authority must be accompanied by written documentation prepared by the bidder evidencing all of its sufficient and reasonable good faith efforts toward fulfilling the goal. These efforts must be active steps, and ones, which could reasonably be expected to lead to sufficient DBE participation to meet the contract DBE participation goal. Mere *pro forma* efforts are not acceptable and will be rejected by the General Manager, DBE Program.

Good Faith Efforts require that the bidder consider all qualified DBEs, who express an interest in performing work under the contract. This means that the bidder cannot reject a DBE as unqualified unless the bidder has sound reasons based on a thorough investigation of the DBE's capabilities. Further, the DBE's standing within its industry, membership in specific groups, organizations or associations and political or social

¹⁵ 49 CFR § 26.53(b)(3).

¹⁶ For further information contact Mr. Donald Mayes, Manager, DBE Contract Compliance at 312-664-7200, ext. 3519.

affiliation (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Contractor's efforts to meet the contract DBE participation goal.

The following list, which is not exclusive or exhaustive, sets forth the types of actions, which indicate good faith efforts on the part of a bidder to meet the DBE goal. The extent and type of actions required will vary depending on such things as industry practice; the time available for submitting a bid and the type of contract involved.

- A. Attendance at a pre-bid meeting, if any, scheduled by the Authority to inform DBEs of subcontracting opportunities under a given solicitation.
- B. Advertisement in general circulation media, trade association publications, and minority-focus media for at least twenty (20) days before bids are due. If 20 days are not available, publication for a shorter reasonable time is acceptable.
- C. Written notification to capable DBEs that their interest in the contract is solicited.
- D. Documentation of efforts to negotiate with DBEs for specific sub-contracts including at a minimum:
 1. The names, addresses, and telephone numbers of DBEs that were contacted and the date(s) of contact.
 2. A description of the information provided to DBEs regarding the plans and specifications for portions of the work to be performed.
 3. A statement explaining why additional agreements with DBEs were not reached.
- E. For each DBE the bidder contacted but rejected as unqualified, the reason for the bidder's conclusion.
- F. Documentation of efforts made to assist the DBEs contacted that needed assistance in obtaining bonding or insurance required by the bidder or the Authority.
- G. Documentation of efforts to utilize the services of small business organizations, community and contractor groups to locate qualified DBEs.
- H. Documentation that the bidder has broken out contract work items into economically feasible units in fields where there are available DBE firms to perform the work.

- I. Evidence that adequate information was provided to interested DBEs about the plans, specifications and requirements of the contract, and that such information was communicated in a timely manner.
- J. Documentation of any efforts made to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services.

GOOD FAITH EFFORTS RECONSIDERATION

If it is determined that the apparent successful low bidders have failed to meet the requirements of the contract goal/good faith efforts, the Authority will provide them with ONE opportunity for administrative reconsideration, before the Authority awards the contract. This reconsideration will include the following:

- A. The bidder will be permitted to either provide written evidence or to present oral argument at a pre-scheduled time that the documentation it submitted with its bid met the DBE goal and/or showed good faith efforts to do so. No new evidence of good faith efforts may be presented after the bid submission deadline.
- B. The Authority's Reconsideration Officer will review the evidence presented by the bidder and issue a written determination that the bidder has: 1) met the DBE goal; 2) not met the DBE goal but has made adequate good faith efforts to do so; or 3) has not met the DBE goal and the good faith efforts made were not adequate.
- C. The decision of the Authority's Reconsideration Officer is final and may not be appealed to the Authority, its funding agencies or the USDOT.
- D. The Authority will not award a contract to any bidder who does not meet the contract DBE participation goal or show good faith efforts to meet that goal. Thus, it is essential that all bidders submit ALL relevant documentation concerning the DBE goal and/or good faith efforts in the envelope or package containing their sealed bid.

7.3.5.5 Counting DBE Participation toward Goals

REQUIREMENT

<p>49 CFR § 26.55--<i>How is DBE Participation Counted Toward Goals?</i>-- sets forth the criteria to be used in counting DBE participation toward DBE contract goals. Grantees should refer to this section and not rely solely on the discussion below since the section may contain relevant additional details not included here.</p>

DISCUSSION

49 CFR § 26.55 defines the methodology for counting DBE participation toward contract goals. *Grantees must be familiar with the details of this section, not all of which are discussed here.* The basic principles of this section are summarized below:

1. When a DBE participates in a contract, you count only the value of the work actually performed by the DBE toward DBE goals.
 - (a) For construction contracts, count the entire amount of that portion of the contract that is performed by the DBE's own forces, including the cost of supplies purchased and equipment leased by the DBE for the work.
 - (b) For professional, technical, consultant or managerial services contracts, count the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, provided you determine the fee to be reasonable and not excessive as compared with fees customarily allowed for similar services.
 - (c) When a DBE subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the DBE's subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.
2. When a DBE performs as a participant in a joint venture, count a portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work that the DBE performs with its own forces toward DBE goals.
3. Count expenditures to a DBE contractor only if the DBE is performing a *commercially useful function* on that contract. This section sets forth a number of criteria for determining when a DBE is performing a *commercially useful function*. Included among these criteria for determining when a DBE is performing a commercially useful function is a requirement that the DBE perform or exercise responsibility for at least 30 percent of the total cost of its contract with its own work force, or that the DBE does not subcontract a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved. Grantee decisions on commercially useful functions matters are subject to review by FTA, but are not administratively appealable to DOT. This section also contains detailed guidance for: (i) determining whether a DBE *trucking company* is performing a *commercially useful function*, and (ii) how to count DBE participation under

several scenarios, including DBE ownership of the trucks and circumstances when the trucks are leased from a non-DBE owner. ¹⁷

4. For expenditures with DBEs who supply materials or supplies, this section establishes rules for counting DBE participation based upon whether the DBE is a manufacturer or a regular dealer. For expenditures with DBE manufacturers, count 100 percent of the cost of the materials or supplies. For expenditures with DBEs who are regular dealers, count 60 of the cost of the materials or supplies.
5. For purchases of materials and supplies from a DBE, which is neither a manufacturer nor a regular dealer, do not count any portion of the cost of the materials and supplies toward DBE goals. However, fees or commissions charged by a DBE for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, may be counted toward DBE goals, provided they are reasonable and not excessive as compared with industry practices.
6. Do not count the participation of a DBE subcontractor toward the prime contractor's DBE achievements or your overall goal until the amount being counted toward the goal has been paid to the DBE.

Best Practices

Following is a solicitation provision developed by the Chicago Transit Authority (CTA) that defines how the Authority will evaluate and count DBE participation. ¹⁸

COUNTING DBE PARTICIPATION TOWARD THE CONTRACT GOAL

The inclusion of any DBE by the bidder in its bid documents shall not conclusively establish the bidder's eligibility for full DBE credit for the firm's participation in the contract. The amount of DBE participation credit shall be based upon an analysis by the General Manager, DBE Program, of the specific duties which will be performed by the DBE.

The bidder may count toward its DBE goal only expenditures to firms which are currently certified by the IL UCP (or with the Authority prior to the implementation of the IL UCP) and which perform a commercially useful function. A firm is considered to perform a commercially useful function when it is responsible for the performance of a distinct element of the work and carries out its responsibilities by actually performing, managing and supervising the work involved.

¹⁷ - Paragraph (d).

¹⁸ - For further information contact Mr. Donald Mayes, Manager, DBE Contract Compliance at 312-664-7200, ext. 3519.

To determine whether a firm is performing a commercially useful function, the General Manager, DBE Program, will evaluate the amount of work subcontracted, industry practices and other relevant factors. The General Manager, DBE Program, reserves the right to deny or limit DBE credit to the bidder where any DBE is found to be engaged in substantial pass-through activities with others.

DBE participation shall be counted toward the DBE goal in the contract as follows:

- A. Once a DBE is determined to be eligible in accordance with these rules, the total dollar value of the contract awarded to the DBE may be counted toward the DBE goal except as indicated below.
- B. A bidder may count toward its DBE goal that portion of the total dollar value of a contract with an eligible joint venture equal to the distinct, clearly defined portion of the work of the contract that the DBE performs with its own forces.
- C. Consistent with normal industry practices, a DBE may enter into subcontracts. If a DBE subcontracts more than thirty percent (30%) or a significantly greater portion of the work of the contract than would be expected on the basis of normal industry practices, the DBE shall be presumed not to be performing a commercially useful function. Evidence may be presented by the bidder involved to rebut this presumption.¹⁹
- D. When a DBE subcontracts a part of the work under the contract to another firm, the value of the subcontracted work may only be counted towards the DBE goal if the DBE's subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count towards the DBE goal.
- E. The bidder may count one-hundred percent (100%) of its expenditures for materials and supplies required under the contract and which are obtained from a DBE manufacturer towards the DBE goal. The bidder may count sixty percent (60%) of its expenditures for material and supplies under the contract obtained from a DBE regular dealer towards its DBE goal. The terms "manufacturer" and "regular dealer" are defined in 49 C.F.R. Part 26.55(e)(1)(ii) and (2)(ii).
- F. The bidder may count towards its DBE goal expenditures to DBEs which are not manufacturers or regular dealers, such as fees or commissions charged for services and assistance in the procurement of essential personnel, facilities, equipment, materials or supplies and transportation charges as set forth in 49 C.F.R. Part 26. However, the General Manager, DBE Program, must determine the fee or charge to be reasonable and not excessive as compared with fees or charges customarily allowed for similar services.

¹⁹ The CTA requirement is more restrictive than the CFR.

- G. The bidder must use good business judgment when negotiating with subcontractors and take a DBE's price and capabilities into consideration. The fact that there may be some additional costs involved in finding and using DBE firms is not sufficient reason to fail to meet the DBE goal set forth in the contract, as long as such costs are reasonable.

7.4 CERTIFICATION: STANDARDS AND PROCEDURES

REQUIREMENT
49 CFR Part 26, Subparts D and E, prescribe standards to be applied and procedures to be followed when certifying businesses as DBEs. <i>Grantees must use the new certification standards for all decisions issued after March 4, 1999.</i> Grantees must also determine whether all disadvantaged owners of current certified firms meet the personal net worth standard by September 1, 1999.
APPENDIX E to Part 26 contains guidance as to how grantees are to make individual determinations of <i>social and economic disadvantage</i> .

DISCUSSION

“**Certification: Standards and Procedures**” is not normally a procurement office function, and detailed guidance may be found at the Web site of FTA’s Office of Civil Rights (<http://www.fta.dot.gov/office/civil>) – See “**Final Rule**” published in the Federal Register.

7.5 EXEMPTIONS AND WAIVERS

REQUIREMENT
49 CFR §26.15 <i>How Can Recipients Apply for Exemptions or Waivers?</i> describes the provisions made by DOT for the granting of exemptions and waivers to the requirements of the DBE regulations.

DISCUSSION

There is a distinction made in this section between *exemptions* and *waivers*. The procedures to be followed when applying for *exemptions* and *waivers* are described in §26.15.

Exemptions are for unique situations that are most likely not to be either generally applicable to all recipients or to have been contemplated in the rulemaking process. If such a situation occurs and it makes it impractical for a particular grantee to comply with a provision of part 26, the grantee should apply for an exemption from that provision. The Secretary will grant the request only if it documents special or exceptional circumstances, not likely to be generally applicable, and not contemplated in connection with the rulemaking that established this part, that make the grantee’s compliance with a specific provision of this part impractical.

Waivers, by contrast, are not designed for extraordinary circumstances where a grantee may not be able to comply with part 26. *Waivers* are for situations where a grantee believes that it can better accomplish the objectives of the DBE program through means other than the specific provisions of part 26. The waiver provision is designed to ensure that DOT and a grantee can work together to respond to any unique local circumstances. Grantees are encouraged to carefully review the circumstances in their own jurisdictions to determine what mechanisms are best suited to achieving compliance with the overall objectives of the DBE program. If a grantee believes it is appropriate to operate its program differently from the way that a provision of Subpart B or C provides, including, but not limited to, any provisions regarding administrative requirements, overall or contract goals, good faith efforts or counting provisions, it can apply for a waiver. For example, waiver requests could pertain to such subjects as the use of a race-conscious measure other than a contract goal, different ways of counting DBE participation in certain industries, use of separate overall or contract goals to address demonstrated discrimination against specific categories of socially and economically disadvantaged individuals, the use or wording of assurances, differences in information collection requirements and methods, etc.

Chapter 8

8 - Contract Clauses

8.1 Federal Requirements (1/98)

8.1.1 Sources of Model Federal Clauses and Applicability (1/98)

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8.1 FEDERAL REQUIREMENTS

8.1.1 Sources of Model Federal Clauses and Applicability

REQUIREMENT
<p>§ 16 of FTA Circular 4220.1E requires that grantees evaluate Federal statutory and regulatory requirements for relevance and applicability to a particular procurement.</p> <p>Appendix A.1 of this Manual contains a discussion of each of the most generally applicable requirements, including the types of contracts to which each applies, any specific wording that must be incorporated in your contracts, suggested wording where specific wording is not mandatory, and the applicability to subcontracts.</p>

DISCUSSION

FTA grantees recognize that the most significant of the strings attached to the receipt of federal funds is the requirement to comply with federal statutes and regulations applicable to their project or particular contract.

You will want to be able to determine exactly which clauses are required for a specific procurement because the incorporation of unnecessary or loosely drafted clauses can:

- **discourage competitors,**
- **cause confusion for anyone involved with the contract, and**
- **ultimately result in additional costs for your agency.**

Appendix A.1 of this manual discusses each of the most generally applicable clauses. Knowing that a particular law must be complied with and that appropriate language must be included in a third party contract, still leaves the Grantee trying to draft or incorporate a clause that meets those requirements. The clause-by-clause discussions in Appendix A.1 have been developed by FTA to assist you.

Best Practices

Appendix A.1 of this Manual contains thirty model contract clauses that are either federally required or are suggested model clauses that you may include in contracts. The clauses contained in this Appendix include the following common elements which will be helpful to grantees in deciding if a specific clause is required in a particular procurement:

Applicability to Contracts - discusses the types of contracts for which the clause is applicable.

Flow Down - discusses to which prime contractors and which level of subcontractors the clauses apply.

Mandatory Clause/Language - includes the model clause, identified by FTA as either a required (specified) clause or a suggested-language clause.

The narratives provided with the individual clauses in the Appendix indicate the source of the clause, if required. Many of the required clauses come directly from requirements in various sections of the Code of Federal Regulations (CFR) which is published by various executive departments of the federal government. The most common requirements for FTA grantees come from various parts of Title 49 of the CFR, published by the Department of Transportation. Requirements of the Department of Labor (such as Davis-Bacon Act clauses) originate as specific language in Title 29 of the CFR. Where clauses are not mandated by an executive department, they are frequently modeled after clauses in the Federal Acquisition Regulations (FAR) which are applicable to those executive departments.

Even though the FAR does not apply to grantee procurements, one advantage of using FAR clauses in the absence of a specific requirement imposed upon your Agency is that a body of federal law has been developed which interprets those clauses.¹

Your State, local jurisdiction, or transit Agency may have enacted a procurement code or body of regulations that actually establishes specific clauses which you must use. In that case, you will be obligated to use what has been established for you. Many of the recent enactments of those codes or regulations are adaptations of the American Bar Association's *Model Procurement Code for State and Local Governments*.²

You may have the ability to incorporate clauses by reference (such as, title, date and where it can be found) in your contracts. To the extent clauses you want to incorporate are published in a Federal, State, or local statute, code, or ordinance, or in an official regulation such as the CFR, you should be able to incorporate those provisions directly into your contractual document by reference only. You can check with your supporting legal counsel on what clauses you can and cannot incorporate by reference and the manner in which they may be incorporated. It is doubtful you would ever be able to incorporate by reference a clause that was only published in an FTA Circular, because of the way FTA Circulars are published (i.e. they are not officially published in the *Federal Register*).

8.1.2 Davis-Bacon Act

REQUIREMENT
<p>§ 24 of the Master Agreement delineates the Grantee's obligations to comply with the employee protection requirements of the Davis-Bacon Act. For construction activities exceeding \$2,000 performed in connection with an FTA-funded Project, the Recipient of those funds agrees to comply with, and assure compliance with, the requirements of 49 U.S.C. § 5333(a), the Davis-Bacon Act,³ and the implementing regulations of the Department of Labor at 29 CFR Part 5. In addition to the requirements of the statute and regulations, the Recipient also agrees to report to the FTA every suspected or reported violation of the Davis-Bacon Act or its Federal implementing Regulations.</p>

¹ - Although the relevance of that law will vary from state to state, most individual states will not have interpreted federal statutes and clauses and will frequently look to the federal common law, as interpreted by the Comptroller General of the United States and the various boards and courts, for guidance in interpreting that law and those clauses.

² - The Model Procurement Code and recommended Regulations may be available in your local public library or may be purchased from the American Bar Association. It is recommended that you contact the following for further information: Member Services, P.O. Box 10892, Chicago, Illinois 60612-0892.

³ - Act of March 3, 1931, 46 Stat. 1491, as amended; codified at 40 U.S.C. § 276a et seq.

DISCUSSION

The Davis-Bacon Act (the Act) provides that contracts in excess of \$2,000 to which the United States is a party (i.e., federal funds are involved) for construction, alteration, or repair (including painting and decorating) of public buildings or public works within the United States shall contain a clause that no laborer or mechanic employed directly upon the site of the work shall receive less than the prevailing wage rates as determined by the Secretary of Labor.⁴ The clause mandated by the Act and its implementing federal regulations is found in Appendix A.1 of the Manual. The purpose of this section in the Manual is to discuss the practical issues surrounding the requirements of the Act and the regulations implementing it.

Best Practices

Federal Wage Determinations - When a construction project is being performed with federal funds, laborers and mechanics employed directly upon the site of the work shall be paid a minimum wage which is determined by the Secretary of Labor. That rate of pay is referred to as the "Davis-Bacon wage rate" and is specifically identified in the contract between the Recipient and the Contractor.

Types of Wage Determinations - Federal wage determinations are of two types: (a) General Wage Determinations and (b) Project Wage Determinations. *General wage determinations* contain prevailing wage rates for the types of construction designated in the determination, and they are used in contracts performed within a specified geographical area. They contain no expiration date and remain valid until modified, superseded, or canceled by a notice in the Federal Register by the Department of Labor. These determinations should be used whenever possible.

Project wage determinations are issued at the specific request of the grantee. They are used only when no general wage determination applies and they are effective for 180 days from the date of the determination.

It is the obligation of the contracting officer to ensure that a copy of the most current wage determination of the Department of Labor (DOL) is actually included in the solicitation and ensuing contract. The Wage and Hour Division of the DOL is responsible for the publication of wage determinations. Such determinations are numbered, dated, and issued as different rate schedules, depending upon the type of construction involved (building, residential, highway, or heavy construction).⁵

⁴ - For a thorough discussion of the labor standards for contracts involving construction, see FAR Subpart 22.4.

⁵ - See generally, FAR § 22.404-2(c) for discussion of the different types of construction.

State Wage Determinations on Federally Funded Projects - Your state may also prescribe minimum wages and benefits for public works projects. *If your state has established prevailing wages that are higher than Davis-Bacon Act rates, you should get advice of counsel to determine whether or not the state law or Davis-Bacon Act rate prevails, however in no event can rates be lower than Davis-Bacon Act rates.*

Where to Obtain Wage Determinations - General wage determinations may be found in the Government Printing Office document entitled *General Wage Determinations Issued Under The Davis-Bacon and Related Acts*.

Subscriptions to this information are available electronically ⁶ and by hard-copy. ⁷ The decisions are included in six different volumes, arranged by state. If ordering a hard-copy subscription, only get the volume that includes your state. An annual edition is published in January or February of each year and then updated weekly throughout the year as part of the loose-leaf service.

This publication is available at each of the 50 Regional Government Depository Libraries and many of the Government Depository Libraries across the country. In large metropolitan areas, this document may also be available in a central public library as well as through local offices of your state's department of transportation. In addition, The Davis-Bacon Act wage rates can be accessed on the Internet at <http://159.185.2:80/wagerate>. This site is maintained by the General Services Administration (GSA).

If you are involved in a project that will involve the issuance of multiple construction-related solicitations over an extended period of time, you may want your own copy of this document. This is not only for convenience but also ensures that your solicitations and contracts contain the most up-to-date determinations. ⁸

Requesting a Wage Determination - As you start a project involving construction, one of the best personal contacts you can make is with the local DOL representative who will be monitoring your contract for compliance with the Davis-Bacon minimum wage requirements. If a general wage determination is available for your area, you may use it without notifying the Department of Labor. If a general determination is not available for your area, you can work with your local

⁶ - In a *Federal Register* Notice of June 14, 1996, the Chief, Branch of Construction Wage Determinations advised that wage determinations issued under the Davis-Bacon and related Acts are available electronically by subscription to the FedWorld Bulletin Board System of the National Technical Information Service (NTIS) of the U.S. Department of Commerce. A telephone contact is (703) 487-4630.

⁷ - The same Notice advised that hard-copy subscriptions may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 with a telephone contact at (202) 512-1800.

⁸ - The cost of the hard-copy subscription (between \$440 and \$830 per volume) is a minuscule investment for your project library when considering the contractual impacts of the wage determinations which will be discussed below.

DOL representative in requesting either a general wage determination or a project determination.⁹ Do not hesitate to utilize the services of a project's design services professional to assist in obtaining information about the latest wage determinations. In all likelihood, that firm will know precisely what the requirements are and who to contact at the DOL.

Because the process to make a determination takes at least 45 days, it is important to know early in the project whether or not a determination is available for your area. The request to have a determination made needs to be submitted to the DOL 45 to 60 days before the solicitation is to be issued.

Wage Determinations and Your Solicitation/Contract - The clause and regulations require that the wage determination be physically attached to the solicitation. The wage determination cannot be incorporated by reference. If the solicitation is issued without a wage determination included, bids may not be opened until a reasonable time after the wage determination has been furnished to all bidders and incorporated into the solicitation by amendment.

What if the wage determination expires before award? It should be noted that *general wage determinations* never expire and remain valid until modified, superseded or canceled by DOL. But *project wage determinations* do expire. In the event that your project wage determination expires or your general wage determination is superseded by a new determination *before bids are received*, you must request a new project determination (if using a project wage determination) and incorporate the new rates in a solicitation amendment in sufficient time for bidders to amend their bids. If the new determination does not change the wage rates and would not cause bidders to change their bid prices, you should amend the solicitation to include the number and date of the new determination.

If the wage determination expires after bid receipt but prior to award, you should request an extension of the determination from DOL's Wage and Hour Division. If necessary, award of the contract should be delayed until the request for extension has been granted or a new wage determination has been issued. If the request for extension is denied and a new wage determination issued that changes the wage rates for classifications to be used in the contract, the contracting officer may either cancel the solicitation and re-advertise with the appropriate determination or award the contract and incorporate the new determination effective on the date of contract award.¹⁰ If the new wage determination did not change any wage rate, the

⁹ - The procedures to be followed in requesting these determinations are found in 29 CFR Part 1 and in FAR § 22.404-3.

¹⁰ - In this case, the grantee has the discretion, depending upon the terms of their solicitation documents, to either award to the low bidder at the price bid, or to equitably adjust the contract price for any increased or decreased cost of performance resulting from any changed wage rates.

contracting officer should award the contract and modify it to include the number and date of the new determination.¹¹

What if the wage determination is modified before award? *If the wage determination is modified (as opposed to expires) before bids are received*, whether or not it must be included in the solicitation is determined by the time of receipt of the modification by the contracting agency or the time of its publication in the *Federal Register*. The modification is effective and must be included in the solicitation if (a) it is received by the contracting agency, or notice of the modification is published in the *Federal Register*, 10 or more calendar days before the date of bid opening or (b) it is received by the contracting agency or notice of the modification is published in the *Federal Register*, less than 10 days before bids are due to be opened unless the contracting officer finds that there is not reasonable time to notify bidders of the modification.

If the modification is received (or notification of the modification published in the Federal Register) after bid opening, it is not effective and shall not be included in the solicitation.¹²

You may have a situation where an "effective modification" (i.e., received by the contracting agency or published in the *Federal Register* 10 days prior to the bid opening date) is received by the contracting officer at some time later than it was received by the contracting agency. In this case, if the "effective modification" is received by the contracting officer prior to bid opening, the bid opening date shall be postponed to allow a reasonable time to amend the solicitation to incorporate the modification and permit bidders to consider the impact of the modification on their bids. If the modification is received after bid opening, but prior to award, the same procedures apply as in our earlier discussion about new wage determinations received after bid opening, but prior to award. If the effective modification is not received by the contracting officer until after award, the contracting officer must modify the contract to incorporate the wage modification retroactively to the date of contract award and equitably adjust the contract for any increased or decreased cost of performance resulting from any changed wage modifications.¹³

What if the Wage Determination is modified after award? It is recommended that grantees incorporate language such that contractors are obligated to pay prevailing wages throughout the life of the project and are not entitled to change orders for increased costs associated with any change in the prevailing wage made after award.

¹¹ - Rules relating to expiration of wage determinations are discussed in detail at FAR § 22.404-5.

¹² - If award of the contract is not made within 90 days after bid opening, the modification becomes effective unless the Wage and Hour Division Administrator extends the 90 day period. If an extension is not granted, the modification is treated the same as a new wage determination and the same procedures as discussed above apply.

¹³ - Rules relating to actions to be taken by the contracting officer in the event wage determinations are modified may be found in FAR § 22.404-6.

As you can see from this discussion, you should not wait until you are ready to issue the solicitation to start checking on the Davis-Bacon wage rates for your area and it should be equally obvious that a good working relationship with your local Department of Labor officials is very important. They generally are very cooperative and helpful in answering any questions you may have and notifying you of impending changes or revisions to existing wage determinations that would impact your contract because it is in their best interests that your project run smoothly from a minimum wage standpoint.

Contract Administration and the Davis-Bacon Act - Once the contract is awarded, it is initially the responsibility of the contracting officer to ensure that the contractor comply with the provisions of the contract clause. This means ensuring that the appropriate signs are available and posted, as well as ensuring that the appropriate payrolls and certificates are submitted not less frequently than weekly. If you have a construction management contractor, you may want to assign that firm the task of checking payrolls on a regular basis and spot-check the pay of individuals against the actual work that they are performing. The failure of the contracting officer to properly monitor the contractor's compliance with Davis-Bacon may result in a determination by DOL that your agency is responsible for payment of the back wages.

If you do not have such a contractual relationship and your construction management is done "in-house," the contracting officer will have responsibility for compliance checks. Once you have reviewed the payrolls, they should be retained unless requested by an appropriate FTA official. In your initial meeting with the FTA regional officials for your project (or this particular contract) make sure it is clear to whom the payrolls should be transmitted. FTA may request that you hold them on-site or at the agency for them to review and not actually transmit them. FTA may also delegate the review function to its Project Management Oversight contractor.

Complaint Process - If DOL comes to the site to investigate a complaint (often the way minimum wage discrepancies are uncovered), you (and the contractor) will want to cooperate in that investigation. If a determination is made that the contractor is not in compliance with the Davis-Bacon Act contractual provisions, it is the contracting officer's responsibility to ensure that DOL and the FTA are informed of the discrepancy. If it is determined that back wages are owed, you will receive written communication to that effect from the DOL and the FTA and you should comply very strictly with that direction -- at this point in time, it is an issue between the contractor and the DOL, and the DOL regulations govern the reviews and appeals from determinations of that type.

8.1.3 Cargo Preference

REQUIREMENT

§ 14.b of the Master Agreement sets forth the Grantee's obligations to comply with the requirements of the United States Maritime Administration regulations entitled "Cargo Preference - U.S. -Flag Vessel," found at 46 CFR Part 381. Specifically, the grantee is obligated to incorporate the clause found at 46 CFR Section 381.7(b) into contracts in which equipment, materials, or commodities may be transported by an ocean vessel.

Best Practices

The fourth model clause in Appendix A.1 to this Manual contains a suggested clause that complies with the requirements of the United States Maritime Administration at 46 CFR Section 381.7(b), which provides a suggested clause for use as well.

If your contract contemplates the shipment of any equipment, materials, or commodities by ocean vessel, a clause that meets the requirements of 46 CFR Part 381 must be included in the contract. Additionally, if a subcontractor at any tier would be responsible for the ocean vessel shipment, the clause would flow down to that subcontractor. The clause in Appendix A.1 or as found at Section 381.7(b) meets that requirement and it is recommended that either of these clauses be utilized.

If it appears you have a contract in which ocean vessel transport would be required, it is recommended you check with your legal counsel and ascertain if there are any changes to the law or the clause. Questions about this clause frequently come up in the context of rail car procurements which, until recently, invariably required the shipment of rail cars from overseas locations. It is recommended that you either be prepared to address this requirement, or be prepared to respond to any questions offerors may have at any pre-bid or pre-proposal conferences held in conjunction with those procurements.

8.1.4 Buy America

REQUIREMENT
§ 14.a of the Master Agreement requires compliance with 49 U.S.C. § 5323(j) and FTA's Buy America regulations found at 49 CFR Part 661, as well as implementing guidance issued by the FTA.

DISCUSSION

Please see, Section 4.3.3.2.2 of this Manual for a thorough discussion of the Buy America requirements. Please see the Appendix for the required clauses.

8.1.5 Fly America

REQUIREMENT
§ 14.c of the Master Agreement states that if the contract or subcontracts may involve the international transportation of goods, equipment, or personnel by air, the contract must require contractors and subcontractors at every tier to use U.S.-flag air carriers, to the extent service by these carriers is available. 49 U.S.C. 40118 and 4 CFR Part 52.

DISCUSSION

A contract for goods or equipment must contain a Fly America provision as discussed in Appendix A.1, just as it contains a Cargo Preference provision, if there is reason to expect that international air travel would be involved. Although there is no Federally prescribed language for this provision, model language is contained in Appendix A.1. If there is no possibility of international shipments or travel under the contract, these provisions are not required.

8.2 SURETY BONDS

History

The idea behind surety bonding is straightforward. One person guarantees to another that a third person will perform.

The first corporate surety bonding company in the United States, the Fidelity Insurance Company, was formed in 1865. In 1894, Congress passed the Heard Act, which required surety bonds on all federally funded projects as a result of the large number of contractors working on public projects who had defaulted and in response to complaints from unpaid suppliers and subcontractors. The Miller Act (40 U.S.C. §270a et seq.) was passed in 1935 to replace the Heard Act. The Miller Act requires performance and payment bonds for all public work contracts in excess of \$100,000 and payment protection, with payment bonds the preferred method for contracts in excess of \$25,000.¹⁴ Almost all states and most local jurisdictions have enacted similar legislation requiring surety bonds on public works. These generally are referred to as “Little Miller Acts.

Today, surety bonds protect virtually every public construction project in the U.S. In 1977, nearly \$160 billion in public works projects were so protected with surety bonds. From 1990-1997, more than 80,000 contractors failed, with losses of \$21.8 billion, according to Dun and Bradstreet’s *Business Failure Record*. From 2001-2003, surety companies incurred more than \$1.8 billion in losses from surety bonds, according to The Surety Association of America.

Types of Surety Bonds

Surety Bond - A written agreement whereby one party, called the *surety*, obligates itself to a second party, called the *obligee* (the owner, grantee), to answer for the default of a third party, called the *principal* or *obligor*. Surety bonds used in construction are called *contract surety bonds*. There are three primary types of contract surety bonds: *bid bonds*, *performance bonds*, and *payment bonds*.

¹⁴ The Miller Act does not apply to grantees. Bonding requirements for grantees are prescribed in the common grant rule, 49 CFR §18.36(h).

Bid Bond (or Bid Guarantee) – A promise from a surety (or a certified or cashier’s check given by a bidder) for a supply or construction contract to guarantee that the bidder, if awarded the contract within the time stipulated, will enter into the contract at the price bid and furnish the prescribed performance and/or payment bond. Default ordinarily will result in liability to the obligee for the difference between the amount of the principal’s bid and the bid of the next low bidder who can qualify for the contract. The liability of the surety is limited to the bid bond penalty. Contractors that have a relationship with a surety can normally obtain bid bonds at no cost. Bid bonds are not usually appropriate for negotiated procurements due to the nature of the process.

Performance Bond - A promise from a bonding company ("the surety") to perform (or cause to be performed) those obligations of the contractor ("the principal"), when the contractor fails to perform its obligations, in an amount up to but not exceeding the amount of the bond ("penal sum"). Performance bonds can incorporate payment bond (labor and materials) and maintenance bond liability (see below). A performance bond protects the owner (grantee) from financial loss should the contractor fail to perform the contract in accordance with its terms and conditions. Once a surety bond is issued, it cannot be withdrawn or cancelled. General contractors may also act as the obligee when bonding subcontractors. General contractors may require subcontractor bonds if the subcontractor is a significant part of the job or a specialized contractor that is difficult to replace.

Payment Bond - A promise from a surety that guarantees payment to certain subcontractors, laborers and suppliers for the labor and materials used in the work performed under the contract. Payment bonds are also called *labor and material bonds*. These bonds protect laborers and suppliers in the event the contractor fails to pay them. The surety’s obligation is limited by the amount of the bond.

Maintenance Bond - A maintenance bond normally guarantees against defective workmanship or materials. However, maintenance bonds occasionally may incorporate an obligation guaranteeing “efficient or successful operation” or other obligations of like intent and purpose.

It is important to note that surety bonds are not intended to protect the contractors that post them. These bonds are for the protection of the owner of the construction project and for the protection of laborers, material suppliers and subcontractors. Since mechanic’s liens cannot be placed against public property, the payment bond may be the only protection these claimants have if they are not paid for the goods and services they provide to the project. Under normal circumstances, sureties do not charge a separate premium for Payment Bonds.

General Indemnity Agreement

When a surety guarantees the performance of a firm (the principal), the principal remains liable for this obligation to the surety in the event of a contract default by the principal. The principal is obligated to reimburse the surety for whatever sums the surety is required to pay out to

complete the principal's contract. Many contracting firms do not have the capital to assure this repayment, and so most surety companies require a general agreement of indemnity (GAI) to be signed not only by the firm, but by individuals willing to support the firm. This might be the owner of the firm, the spouse of the owner, a parent corporation or other individuals willing to risk their assets for the firm.

Public vs. Private Sectors

Performance bonding is not typical in large private sector contracts but is required in the public sector. Public construction contract performance bonding is more common because:

- The public interest is served by the surety industry's protection of taxpayer dollars expended for public sector projects;
- the public sector undertakes large, fixed price public works projects;
- unforeseen costs could easily bankrupt a construction contractor that is a pure service organization with few assets;
- public agencies accept the lowest responsive bid from a responsible bidder without an opportunity to fully consider and adjust the contracting strategy and terms to the apparent low bidder; and
- if a contractor is unable to perform, (e.g. because it is having difficulty obtaining funds to pay suppliers and employees) and if the work is slowed down and ultimately turned over to other forces to complete, the cost to the public agency of mobilizing the substitute forces and picking up each of the work tasks where the failed contractor left them is higher than in a typical supply contract where there are usually a number of suppliers offering the product at competitively established market prices.

Payment Bonds have a related but secondary purpose. Usually in the public sector, a contractor's suppliers cannot place liens on the material and work supplied when payment to the subcontractor is overdue. States often protect public property and services by exempting public works from materialmen's liens. Therefore, although performance bonds alone would often guarantee payment to subcontractors, additional payment bonds are often required in construction contracts to assure there are no disputes over potential performance bond liability to satisfy second and third tier subcontractor claims.

Prequalification of Contractors

Most surety companies are subsidiaries or divisions of insurance companies, and both surety bonds and traditional insurance policies are risk transfer mechanisms regulated by state insurance departments. However, traditional insurance is designed to compensate the insured against unforeseen adverse events. The policy premium is actuarially determined based on aggregate premiums earned versus expected losses. Surety companies operate on a different business

model. *The surety prequalifies the contractor based on financial strength and construction expertise.* Since the bond is underwritten with little expectation of loss, the premium is primarily a fee for prequalification services and the allocation of the surety's capital to protect the obligee against the possibility of loss.

Although the bonding companies perform this prequalification for their own purposes and their interests are similar to those of the transit agency, the transit agency is still required to review potential contractors' responsibility before award. While surety bonds are a necessary condition in the determination of responsibility, they alone are not sufficient. Prequalification of contractors is the primary focus of surety underwriters. Surety bond underwriters must analyze applicants closely since they are committing the assets of their companies to guarantee the contractor's performance and payment of its suppliers. Underwriters must be certain that only those contractors who can complete a project receive a bond, and they must be fully satisfied that the contractor's business is well-managed and profitable. Prequalification is one of the most valuable services of the surety bond process. The process involves underwriters satisfying themselves that the contractor has:

- Good references and reputation;
- A track record of successful operations in the past and the ability to meet current and future obligations;
- Experience matching the contract requirements;
- The necessary equipment to do the work or the ability to obtain it;
- The financial strength to support the desired work program;
- An excellent credit history, and an established bank relationship and line of credit.

Surety bonds are obtained through insurance agents and brokers, called *producers*. These producers help their contractor clients during the prequalification process and assist them in developing a business relationship with the surety bond company.¹⁵

Surety Bonds vs. Bank Letters of Credit

Bank letters of credit are discussed below for consideration under "Best Practices" in the context of non-construction contracts. At first glance it may appear that letters of credit and surety bonds offer the same degree of financial protection. However, a more thorough review reveals that surety bonds provide greater benefits to both the grantee (obligee) and the contractor (principal).¹⁶

¹⁵ The National Association of Surety Bond Producers (NASBP) web site address is: www.nasbp.org.

¹⁶ An unforeseen bankruptcy by the contractor is especially troublesome, in that the bankruptcy court could freeze the funds committed by the LOC, rendering the LOC of no value to the grantee. *The grantee must be diligent to monitor the contractor's condition, and call the funds under the LOC if financial trouble is expected. There is no such danger with surety bonds.*

A Comparison	
<p>Bank Letters of Credit</p> <p><u>Prequalification Services:</u></p> <p>The underwriting bank focuses primarily on the quality and liquidity of the underlying collateral; i.e., on the ability of the contractor to repay any draws on the LOC.</p>	<p>Surety Bonds</p> <p>The essence of surety underwriting is prequalification. The surety examines the contractor's entire business operation, checking for adequate finances, necessary experience, organization, existing work-load and its profitability, and management skills to successfully complete the project for which the bond is required.</p>
<p><u>Claims - Access to Funds:</u></p> <p>The beneficiary must make a demand prior to expiration date. No funds are available after expiration date, even for liabilities incurred prior to expiration. The bank has no obligation to complete the project.</p> <p>There is no completion clause in a LOC. The task of administering completion of the contract is left to the owner. The owner must evaluate work done, develop detailed specifications for completion of the work and solicit bids or negotiate (depending on state law) for a new contractor to complete the work. Under a performance bond, these tasks are the responsibility of the surety.</p> <p>The owner must determine the validity of claims by subcontractors, laborers, and material suppliers. If there is not enough money from the letter of credit to pay all of the claims, then the owner has to decide which claims will be paid and which will be rejected.</p>	<p>In most cases, a bond covers liabilities that were incurred during the bond term. A claim may be made on the bond after the termination of the bond for liabilities incurred prior to cancellation or nonrenewal.</p> <p>The surety has obligations to both the owner and the contractor. If the contractor and owner disagree on contract performance issues and the owner declares the contractor in default, the surety must investigate the claim.</p> <p>The surety has several alternatives if the Contractor defaults:</p> <ol style="list-style-type: none"> 1. Finance the original contractor or provide support necessary to allow the contractor to finish the project; 2. Arrange for a new contractor to complete the contract; 3. Assume the role of the contractor an subcontract the remaining work; 4. Pay the penal sum of the bond. <p>With payment bonds, the surety pays the rightful claims of certain subcontractors, laborers and suppliers.</p>

<p><u><i>Borrowing Capacity:</i></u></p> <p>Specific assets are pledged to secure bank letters of credit. LOCs diminish an existing line of credit, and are reflected on the contractor's financial statement as a contingent liability. The tying up of assets, or the reduction of an available line of credit, is counter-productive to both the owner and the contractor. This can adversely affect the contractor's cash flow during contract performance.</p> <p>Subcontractors and material suppliers may be reluctant to provide labor and supplies to the contractor since they have no access or rights to funds available from the LOC.</p>	<p>With few exceptions, performance and payment bonds are issued on an unsecured basis. They are usually provided on the strength of the corporate and personal signatures of the company owners. The issuance of bonds has no effect on the contractor's bank line of credit.</p> <p>Subcontractors and material suppliers may be more willing to provide labor and materials to the contractor when they are protected by a payment bond.</p>
<p><u><i>Cost:</i></u></p> <p>Cost is generally 1% of the contract amount covered by the LOC- e.g., if the LOC covers 10% of contract, Cost = 1% x (10% x Contract Amount).</p>	<p>Generally ½ - 2% of contract price. The premium includes 100% performance bond, a 100% payment bond, and normally a one-year maintenance period.</p>

Cost of Bonds

The price or premium for a bond will vary depending on the type of construction, the contract amount, the duration of the project, the surety company, and the experience and financial strength of the contractor. Premiums range, on average, from ½ % to 2 % (or perhaps higher, and not necessarily tied to business strength) of the contract price for contractors with established bonding credit. If the contract amount changes, the bond premium will be adjusted for the change in contract price. There is usually no additional cost for bid bonds or payment bonds when purchased with a performance bond.

Bond premiums cannot be reduced by lowering the percentage of the bond from, say, 100% to 50%. Thus, it usually makes sense to require 100 percent performance and payment bonds so the owner receives maximum protection.¹⁷ *The advantage, however, in considering a lower*

¹⁷ It is not until one goes to the 20% level that premium rates may change.

*percentage is that more contractors may be allowed to compete because some may not have the bonding capacity to get a 100% bond, but may qualify for a lesser amount.*¹⁸

Surety bonds issued through the SBA *Surety Bond Guarantee Program* (see below) carry an additional 0.6 percent fee.

Government Oversight

Surety bond companies are regulated by state insurance departments. Surety bonds on state public works must be issued by a surety bond company licensed by the insurance department in that state.¹⁹

On the federal level, the U.S. Treasury Department maintains a list of surety bond companies that it has qualified to write surety bonds required for federal construction projects. To be on this list, a surety bond company must file financial and other information with the Treasury Department and undergo the Department's financial analysis.²⁰

Bonding Assistance Programs

Since the early 1970s, the Small Business Administration (SBA) has operated its *Surety Bond Guarantee Program*, which provides some repayment of losses to surety bond companies from bonds they would otherwise not provide. Small contractors have performed more than \$1 billion of contracts per year with the help of this SBA program.

The U.S. Department of Transportation (DOT) has established a *Bonding Assistance Program* that is administered by the Office of Small and Disadvantaged Business Utilization (OSDBU) within the Office of the Secretary. The Bonding Assistance Program offers certified minority, women-owned and disadvantaged business enterprises (DBEs) an opportunity to obtain bid, payment and performance bonds for transportation-related projects. The Program provides surety companies an 80% guarantee against losses on contracts up to \$1,000,000. Bond approval and issuance are performed by the DOT approved surety companies.

A number of states have also established bond guarantee programs for contractors, as well as other special bonding assistance programs.

¹⁸ This appears to be true for bus manufacturers in the current business environment.

¹⁹ To locate a state insurance department contact the National Association of Insurance Commissioners at www.naic.org. See also the U.S. Treasury List at www.fms.treas.gov/c570/index.html

²⁰ The Treasury List may be downloaded on the Internet at www.fms.treas.gov/c570/index.html. The Treasury List identifies the various states where the listed bonding companies are licensed and the state insurance departments with their phone numbers.

The Surety Association of America (SAA) is a nonprofit trade association that represents more than 650 U.S. and eight foreign surety bond companies. SAA has developed a *Model Contractor Development Program* (MCDP) to increase and promote the availability of surety bonds to small, minority and women contractors. The objectives of this program include:

- Educating emerging contractors about surety bonds and helping them become bondable,
- Identifying resources available to emerging contractors in obtaining their first bond, such as the SBA Surety Bond Guarantee Program and similar state and local programs,
- Providing assistance and referrals to emerging contractors in obtaining appropriate accounting, project management and financing expertise,
- Assisting these contractors with increasing their bonding capacity.²¹

SAA also offers an educational tool for contractors and subcontractors, *Your First Bond*, a videotape and brochure of what contractors need to do to apply for bonds, and other educational materials.²²

Ratings Organizations

A.M. Best Company (Best's) is a private company that analyzes and rates insurance companies. Each year it publishes *Best's Insurance Reports, Property-Casualty*, which includes detailed profiles and financial information on almost every insurance company operating in the United States. Best's gives each company a rating (designated by an alphabetic character) and a financial size category (designated by a Roman numeral scale). Best also publishes an abbreviated version of its *Best's Key Rating Guide, Property-Casualty*, which contains only the alphabetic ratings and financial size categories of each insurance company. These books are available in many public and financial libraries or may be purchased from A.M. Best.²³

²¹ For more information about the SAA's Model Contractor Development Program, contact the Surety Association of America at 202-463-0600 or their Web site: www.surety.org.

²² For this and other materials, contact the Surety Information Office at 202-686-7463 or their Web site: www.sio.org.

²³ Information and prices are available at www.ambest.com.

Other ratings organizations include Dun & Bradstreet,²⁴ Fitch Ratings,²⁵ Moody's Investors Service,²⁶ Standard & Poor's²⁷ and Weiss Ratings Inc.²⁸ FTA does not endorse any particular company or program.

8.2.1 Performance Bonds

REQUIREMENT
<p><u>FOR CONSTRUCTION ACTIVITIES:</u></p> <p>§ 15.m. (1) of the Master Agreement states that:</p> <p style="padding-left: 40px;"><u>Construction Activities.</u> The Recipient agrees to provide bid guarantee, contract performance, and payment bonding to the extent deemed adequate by FTA and applicable Federal regulations, and comply with any other bonding requirements FTA may issue.</p> <p>FTA Circular 4220.1E states the specific minimum bonding requirements for construction or facility improvement contracts with a value exceeding \$100,000:</p> <p>11. <u>BONDING REQUIREMENTS.</u> For those construction or facility improvement contracts or subcontracts exceeding \$100,000, FTA may accept the bonding policy and requirements of the grantee, provided FTA determined that the policy and requirements adequately protect the Federal interest. FTA has determined that grantee policies and requirements that meet the following minimum criteria adequately protect the Federal interest.²⁹</p> <p style="padding-left: 40px;">a. A bid guarantee from each bidder equivalent to five (5%) percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified</p>

²⁴ www.dunandbradstreet.com/us.

²⁵ www.fitchratings.com.

²⁶ www.moodys.com.

²⁷ <http://www2.standardandpoors.com/servlet/Satellite?pagename=sp/Page/HomePg>.

²⁸ www.weissratings.com.

²⁹ The language in this section has been amended from prior versions of the circular to better explain that FTA will accept a local bonding policy that meets the minimums of paragraphs a, b, and c but that a policy that does not meet these minimums still may be accepted where the local policy adequately protects the Federal interest. Grantees who wish to adopt less stringent bonding requirements generally, for a specific class of projects, or for a particular project may submit the policy and rationale to their regional office for approval.

check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified;

- b. A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such a contract; and
- c. A payment bond on the part of the contractor. A payment bond is one executed in connection with a contract to assure payment, as required by law, of all persons supplying labor and material in the execution of the work provided for in the contract. Payment bond amounts determined to adequately protect the federal interest are as follows: (1) 50% of the contract price if the contract price is not more than \$1 million; (2) 40% of the contract price if the contract price is more than \$1 million but not more than \$5 million; or (3) \$2.5 million if the contract price is more than \$5 million.
- d. A grantee may seek FTA approval of its bonding policy and requirements if they do not comply with these criteria.

State laws are sometimes specific in requiring or prohibiting security and guaranties in public procurements; performance bond requirements may apply even when the Federal requirements do not, and the state requirement may also affect bid guaranties.

FOR NON-CONSTRUCTION ACTIVITIES:

FTA does not require bonding in any amount for non-construction contracts, including rolling stock. FTA leaves the decision to require bonds for non-construction contracts to the discretion of its grantees.³⁰

DISCUSSION

Construction: For construction contracts with a value exceeding \$100,000, your solicitation documents must include the performance bond, payment bond, and bid security requirements specified above. Bids that do not include the required bid security are to be rejected. Your state law may require additional bond protection (e.g., for even smaller construction contracts).

³⁰ See FTA Dear Colleague Letter C-01-04, dated Jan. 20, 2004 – *Performance and Payment Bonding Requirements*.

Non-Construction: You may decide to include bond requirements in other procurements where your agency has a material risk of loss because of a failure of the prospective contractor. This is particularly so if the risk arises from the potential for contractor bankruptcy or financial failure at the time of partially completed work. If you require a performance bond, you may also require bid security that assures the execution of the performance bond as described in Section 4.3.3.3.2, "Bid Guarantee." Payment bonds are most typically used in construction contracts or contracts where the risk of failure of the prime contractor with debts to subcontractors is material. Since the contract is incorporated into the bond, it is essential that the grantee complies with the terms of the contract or the bond may not be enforceable.

In recent years sureties have been paying much more attention to the terms of their customers' contracts. One area of great concern to sureties in the current environment is the *length of contracts*. Here the issues tend to be *parts warranties* and *option* provisions. Sureties are tending to limit their exposure to five years, including warranties.³¹ Another major surety issue affecting the transit industry, especially bus manufacturers, is the *poor financial condition of many suppliers*. The financial strength of the contractor affects the cost of the bond, as well as the ability of the contractor to secure a bond. If a grantee asks for a 100% performance bond on a bus procurement in the current environment, it may very well preclude potential suppliers from bidding. Another practice causing surety problems concerns liquidated damages; i.e., some agencies have contractual provisions that produce *unlimited liquidated damages*.

Alternative forms of acceptable security include *letters of credit* from financially secure institutions, such as banks, and cash deposits. Letters of credit are frequently used in a field or for a principal with which bonding companies have little experience. Letter of credit terms differ from bonds in that they do not provide for completion of the contract, in the event the principal is unable to perform. Procedures should be established to make certain the letter is issued by a bank or other financial institution that offers financial security similar to a bonding company. Cash deposits are not typically used except as bid security.

The FTA requirement discourages unnecessary bonding because it increases the cost of the contract and restricts competition, particularly by disadvantaged business enterprises. Bonding companies exercise their discretion and assure their profits primarily by declining to undertake excessive risks. Consequently many bidders have limited "bonding capacity." Unnecessary performance bonds reduce their ability to bid on bonded work. Small businesses with short histories may have particular difficulty obtaining a bond.

³¹ Transit agencies procuring rolling stock tend to ask for ten year warranties on parts.

Best Practices

Bond Authenticity - It is essential that bonds be verified as being authentic when they are presented to owners. It is a fact that unscrupulous contractors have on occasion presented fraudulent bonds. *Owners (obligees) should always contact the surety company to confirm the authenticity of the bond that has been presented.* The Surety Association of America (SAA) maintains a list of surety companies that will assist in verifying the authenticity of a surety bond. The authenticity program is available via the Internet.³²

Exclude Warranties from Bond – It has become increasingly difficult to obtain bonds of longer duration than two years. Since the warranty periods will greatly extend the duration of the bond, it would be best to remove any warranty requirement from the performance bond and cover the warranty risk through other techniques. Suggestions include withholding a reasonable portion of the contract price for warranty repairs and releasing the withholding in increments as the warranty time-period dissipates, or requiring a separate Maintenance or Warranty Bond in a reduced amount sufficient to cover the potential obligations of the Contractor for repairs or maintenance. This will remove a bonding obstacle and keep the bonding costs more reasonable. The key message here is to *keep long-term obligations with the manufacturers and not attempt to give them to sureties.*

Consider Letters of Credit – On non-construction contracts, where you are not required by FTA to have bonds, but where you may be required to protect your progress payments to the contractor prior to delivery of final products, consider the use of a bank *letter of credit* (LOC) from the contractor instead of a bond. A bank letter of credit (LOC) is a cash guarantee to the owner. The owner can call on the letter of credit on demand without cause.³³ Once called upon, the letter of credit converts to a payment to the owner and an interest-bearing loan for the contractor. Bonds may be an expense that you don't need to incur, and bonds may not even be available in the amounts you would need at reasonable prices.³⁴

Cap the Liquidated Damages – The Contractor's maximum risk must be clearly expressed in the contract so that the surety will know how to price the risk. Damages should not be open-ended. Additionally, if damages are expressed "per day," make the daily damages accrue for *business days* only. Do not include Saturdays or Sundays since you cannot take delivery on those days.

³² At www.surety.org, click on "About the Industry," then "Bond Authenticity Program."

³³ A *conditional letter of credit* may require some burden of proof by the owner that the contractor has failed to perform before the bank will pay on the letter of credit. Most letters of credit are *irrevocable*, which means that both parties must agree to any changes to the letter of credit. Changes must be documented by an amendment signed by both parties.

³⁴ See BPPM Sections 2.4.4.2 – *Advance Payments* and 2.4.4.3 – *Progress Payments* where adequate security for these payments is discussed.

Design-Build Projects – For design-build projects and large transit capital projects (those over \$200M) it would be advisable to *talk to prospective sureties before the solicitation is issued to see if the Design-Build contractors will have problems securing bonds because of the size of the project*. There are two problems to be aware of: (1) The lack of bonding capacity in the industry at the current time, and (2) The fact that surety practice has historically been based on the conventional *Design-Bid-Build* method, where design and construction are performed by separate companies and where sureties have detailed designs completed for which they can assess the performance risks. On a Design-Build project, the lack of detailed designs desired by sureties to evaluate project risk may make it difficult to obtain performance bonds for the full value of the contract. When this is the case, the grantee will want to involve their FTA regional office and request a waiver from the standard bonding requirements. It should also be noted that consultation with FTA would be advisable in any design-build project to create a reasonable bonding strategy. In any case, if a 100% bond were required by your agency, it would apply only to the value of the construction work within the design-build contract.

Technology - Surety companies like “brick and mortar” business because they understand it. They are adverse to *technology (e.g., projects requiring software development)*, and do not like to bond the *Operation and Maintenance* phase of contracts where rail cars are being bought with O&M responsibilities. If you are considering a bond in these situations, you should contact prospective sureties to determine if bonds will be available before you issue your solicitation.

Notify Surety of Problems Early – It is very important to *notify the surety of problems as soon as they occur*. When the surety is notified, and becomes involved, contractors are strongly motivated to perform because the *threat of losing the ability to obtain bonds is a very serious concern to contractors*.

If the Contractor is experiencing financial difficulties, the surety will often provide working capital to keep the contractor going. This *financial assistance* may occur without a formal declaration of default by the owner. Another form of financial assistance often provided by sureties is to guarantee a line of bank credit. This will assure a steady flow of materials to the job site and payments to subcontractors.

Sureties frequently will provide *technical assistance* in order to minimize problems and losses on a project. Many sureties employ professional engineers, accountants, and other technical staff or advisors who can help a contractor who is experiencing problems.

Sureties can provide *mediation between an owner and Contractor*. When problems occur on a construction project, it's likely that the relationship between the owner and Contractor is strained. The surety, as a third-party participant, can investigate the issues that are dividing the parties and offer workable solutions before the owner declares a default.

Subcontractor failure is a frequent cause of a prime's problems. Sureties can become involved in *assisting a subcontractor* with financing and technical help, just as they do with the prime

contractors they are bonding. They will do this to protect their bonded contractor from default. Once again, it is important that the surety be informed early of performance problems on all levels of the project so they can assist when circumstances require it.

Subcontractor Bonds – Grantees can help their prime contractors manage risk by *requiring performance bonds from major subcontractors*. If a subcontractor is a significant part of the job or so specialized that it will be difficult to find a replacement, bonding is a cost-effective way to limit the exposure of both the grantee and the prime contractor.

Remember the important contribution of the surety in *prequalifying the subcontractor*. This is an important step in ensuring that a responsible subcontractor is selected by the prime for a critical role on the project. While the cost of the subcontractor's bond will have to be paid by the prime and will be passed on to the grantee, it is nevertheless an insurance policy that can help avoid significant problems for the prime and thus for the grantee. It is also well to keep in mind that a subcontractor that is experiencing financial difficulties is more likely to complete a bonded project because corporate assets, and possibly personal assets, are at risk. This may be a singularly important factor in keeping the subcontractor performing on the job. Be sure to investigate the quality of the subcontractor's surety, using one of the industry rating companies mentioned above, and always confirm the authenticity of any bond presented.

Subcontractor bonding may also be beneficial when the prime contractor is not financially strong. For example, New York City Transit (NYCT) recently had a situation where the cost of a warranty bond was very expensive to a vehicle manufacturer because of their financial condition. In order to overcome this, the manufacturer had its major parts supplier provide the bond, and as a result the manufacturer saved \$2,000 per vehicle. The supplier's cost for the bonding was significantly less since they were in excellent financial condition.

Consider More Stringent Prequalification/Responsibility Criteria - If performance bonding is a problem because the project is so large that few bidders can be fully bonded, or because of its effect on competition, you can consider other ways of reducing your agency's risk. You may (through prequalifying only strong bidders, or requiring a high standard of responsibility) be able to reduce your risk in a way that allows more competition than would result from a full performance bond requirement.

Balance the Costs of Bonding against Risks Present in a Range of Contractors - In addition to construction contracts, specialty supply contracts that involve custom manufacturing, e.g., for rail cars or buses, involve some risk of failure and consequences similar to construction situations. However, performance bonds are far less common in these situations than in construction contracts. Information technology development contracts also hold the potential for loss in the event of contractor failure, but performance bonding is less common in developmental work because the risks of failing are too expensive to insure and because the surety/contractor relationships have not developed as they have in the construction industry.

If you are seriously concerned about one or more of the following, considering your possible successful offerors, you can evaluate the need for a performance bond, in light of its cost, its effect on competition, and effect on DBEs:

- financial strength and liquidity of the offerors,
- inadequacy of legal remedies for contractor failure and the effect that failure of the contractor could have on your agency,
- difficulty and high cost of completing the contractor's work if it is interrupted,
- experience of the contractor on other contracts – whether there is a history of contract failure in a particular activity,
- degree of technical difficulty; e.g., where new working methods are required.

Consider Corporate Guaranty - Where your concern is partly that the proposers have limited financial resources, but they have relationships with financially stronger corporate entities, you could consider requiring a corporate guaranty of the contract rather than a performance bond. In this case, the parent corporation of your contractor, whose liquidity might rival the bonding company's, would promise to perform the contract should the contracting corporation fail to do so. This arrangement may not only be less expensive than a performance bond, but may also result in more influence on the contractor where contract disputes are involved.

Return Unnecessary Bid Guaranty - Because guarantees have a financial impact on proposers as long as they are in effect, unused bid guarantees should be returned to proposers as soon as it is determined that they have no reasonable chance of winning the contract. This is discussed in Section 4.3.3.3.2, "Bid Guaranty."

Surety Bond Claims and Counsel – Before a surety will assume responsibility for a contractor that you have defaulted, *the surety must be satisfied that its contractor owes a debt. The surety will conduct an investigation as a result of receiving your notice of claim.* Keep in mind that the issues of default and claims under the bond are predicated on the legal interpretation of a contractual relationship, as developed through statutes and legal precedents. This means it is critical that you seek legal assistance from counsel who is familiar with surety bonds and construction, which is a specialized field of law. Never rely on a layperson's interpretation of the contract. *Experienced counsel can save time, money, and frequently, unnecessary litigation.* The American Bar Association (ABA) Trial Tort and Insurance Practice Section's Fidelity and Surety Law Committee includes lawyers who specialize in surety law. Many state bar associations also have surety committees or construction law committees. For names of lawyers in your area, call the ABA (312) 988-5607 and ask for the FLSC membership directory or the pages for a particular state, or call the state bar association for a reference.

It is also of the utmost importance that you document the progress of your project. Remember that the surety promises to complete the contract when the "principal is in default of the contract

and has been declared to be in default by the obligee.” Well documented project files will be a great asset to facilitate the surety’s initial investigation and especially if the matter goes to court. See BPPM Section 11.2 – *Claims, Grievances and Other Disputes With Contractors*, paragraph titled “Avoiding Disputes Through Proper Documentation.”

Indemnification Clauses– One of sureties’ concerns in any construction contract today is the increasingly broad and unlimited indemnity that contractors are contractually required to provide. If this indemnification is needed to satisfy political constituencies or due to other factors, clearly stating that the liability is to be covered through insurance and not the performance and/or payment bond would eliminate one potential obstacle that sureties sometimes raise as an underwriting road block.

Grantees should not assume that contractual indemnification, whereby the contractor agrees to indemnify and hold the grantee harmless from and against various risks, is an adequate substitute for bonds or insurance. These contractual promises are only as good as the contractor’s financial resources backing them. If the contractor fails to perform the contract, it is likely that the contractual indemnification provisions will be of little value. It is important, therefore, to ensure the contractor is bonded or has adequate insurance to support the indemnification clauses in the contract.

Resources – Following is a list of organizations offering information and resources related to surety bonds and insurance:

1. Surety Information Office (SIO)
5225 Wisconsin Avenue NW, Suite 600
Washington, DC 20015-2014
(202) 686-7463
www.sio.org

SIO is the information source on contract surety bonds in public and private construction. SIO is supported by The Surety Association of America and the National Association of surety Bond Producers.

2. National Association of Surety Bond Producers (NASBP)
5225 Wisconsin Avenue NW, Suite 600
Washington, DC 20015-2014
(202) 686-3700
www.nasbp.org

NASBP is the international organization of professional surety bond producers and brokers. NASBP represents more than 5,000 personnel who specialize in surety bonds for the construction industry and other types of bonds such as license and permit bonds.

3. The Surety Association of America (SAA)
1101 Connecticut Avenue NW, Suite 800
Washington, DC 20036
(202) 463-0600
www.surety.org

SAA is a voluntary, non-profit, incorporated association of companies engaged in the business of suretyship. SAA represents more than 500 companies that collectively underwrite the majority of suretyship and fidelity bonds in the United States.

4. U.S. Department of the Treasury
www.fms.treas.gov/c570

This website offers a free download of the Federal Treasury List (Circular 570), which lists all surety companies qualified to underwrite surety bonds on federal construction.

5. The International Risk Management Institute (IRMI)
www.irmi.com

The IRMI site offers articles and information on surety bonds and other risk management tools, along with contact information for risk management professionals and advisors. The Expert Commentary section includes more than 500 articles on a variety of risk management issues.

6. The National Association of Insurance Commissioners
www.naic.com

The National Association of Insurance Commissioners site verifies that a surety company is licensed to conduct business in a particular state, and provides access to state insurance department websites.

7. The Risk & Insurance Management Society
www.rims.org

The Risk & Insurance Management Society website offers a number of helpful tools to assess and manage risk.

8. U.S. Small Business Administration (SBA)
www.sba.gov/osg

The SBA website offers information on the Surety Bond Guarantee Program, including free copies of forms required to be submitted for approval into the program and contacts for local SBA offices.

8.2.2 Options

REQUIREMENT

§ 9.i. of FTA Circular 4220.1E requires grantees to evaluate options:

(1) Evaluation of Options. The option quantities or periods contained in the contractor's bid or offer must be evaluated in order to determine contract award. When options have not been evaluated as part of the award, the exercise of the options will be considered a sole source procurement.

(2) Exercise of Options.

(a) A grantee must ensure that the exercise of an option is in accordance with the terms and conditions of the option stated in the initial contract award.

(b) An option may not be exercised unless the grantee has determined that the option price is better than the prices available in the market or that the option is the more advantageous offer at the time the option is exercised.

§ 7.m. of FTA Circular 4220.1E states that:

Grantees shall not enter into any contract for rolling stock or replacement parts with a period of performance exceeding five (5) years inclusive of options.

DEFINITIONS

Option - A unilateral right in a contract by which, for a specified time, a grantee may elect to purchase additional equipment, supplies, or services called for by the contract, or may elect to extend the term of the contract.

DISCUSSION

If you include terms in a contract that permit you to choose, at the time of award or later, quantities and items in addition to the base amount (options), you must include the price of those quantities or items in the price evaluation of the offer before selecting an apparent low bidder or determining the competitive range for negotiations. Otherwise you may not use Federal funds for the additional quantity without a separate, non-competitive procurement process (i.e., processing as a sole-source procurement).

If you include the price in the evaluation and later choose to order the additional quantities or items, you must again review the prices to ensure that they are advantageous.

Purpose

Options are most often used where there is uncertainty as to the quantity of goods and services you will require under a contract. Rather than planning a separate, later procurement when the requirement becomes certain, and incurring potential delays in delivery of the items because of the procurement lead-time to buy additional items, you may want to specify the option to buy more in your present contract. Options may also be appropriate when there is a need for standardization of parts or interchangeability and it is best to get proposers to bid competitively on the entire potential need at the time of the first procurement, rather than processing a sole-source add-on at a later date when the supplier will be under no competitive pressures.

Another common use of options is to fit a construction project to a budget. For example, a number of elective items such as additional landscaping, signage that could be purchased separately, and a higher quality, lower maintenance finish are specified as options in a construction solicitation. When the bids are evaluated, you can elect the base construction plus those options that can be procured with the available funds. Those options that are not purchased under the basic contract would be established as options and ordered when future funding becomes available. When this approach is used, the optional items are often called "deductible options". In this case, the stated bid amount already includes the options, and each option is associated with a deduction from the stated bid. This method generally carries the clear implication to the offerors that the cost of optional items will be evaluated in determining the successful bid. If you award the contract minus certain options, and then wish later to add those optional items back, you must comply with the requirement to make a new determination that the option prices are advantageous.

Best Practices

Whenever the option quantities are a significant portion of the total potential requirement, you should carefully consider whether a *requirements* or *indefinite delivery* type of contract would better suit your circumstances and needs. A *requirements* contract would provide for filling all of your requirements for certain supplies or services during a specified time period by placing orders with the contractor who wins the competition. Your solicitation and contract would state what you believe to be a realistic estimated total quantity but you would not be legally required to order that quantity. The contract would also state the maximum limit of the contractor's obligation to deliver as well as the minimum quantities that you may order under an individual order. The contract would contain competitively bid, fixed unit prices for the items being procured.

An *indefinite quantity* contract works like the *requirements* contract above except that you do not obligate your agency to fill all of your requirements for a particular supply or service from any given contractor.

Orders placed under a requirements or indefinite delivery contract are not treated as sole-source procurements and do not have to be evaluated like option orders and found to be advantageous from a price standpoint before being placed.

When options are justified by the degree of uncertainty, the difficulty of conducting a separate procurement in a timely manner, or the importance of a single source, then include in your solicitation a clear statement that the full option price will be included in your evaluation of prices to determine the lowest bid.

When options may be exercised at a time of your choosing over a long contract period, you may wish to reduce the offeror's risk by including a price escalation provision. Consumer price indices or other indices of prices germane to your suppliers may be obtained from the Bureau of Labor Statistics of the U.S. Department of Labor.

In the case of rolling stock and similar custom equipment for which you have an ongoing need, you may find that the advantage of having an option for identical equipment at a predetermined price outweighs the pricing difficulties introduced by options.

You may also benefit from a competitive procurement conducted by another transit agency by asking that agency to specify optional quantities for rolling stock you expect you may need in the same time frame as the base procurement. The advantage of specifying your options in the other agency's original solicitation, rather than piggy-backing after the offers are submitted, is that you will take advantage of a competitive environment instead of a sole-source add on at a later date.

8.2.3 Liquidated Damages

REQUIREMENT
<p>§ 13 of FTA Circular 4220.1E states:</p> <p>A grantee may use liquidated damages if it may reasonably expect to suffer damages from late completion and the extent or amount of such damages would be difficult or impossible to determine.</p> <p>The assessment for damages shall be at a specific rate per day for each day of overrun in contract time; and the rate must be specified in the third party contract. Any liquidated damages recovered shall be credited to the project account involved unless the FTA permits otherwise.</p>

DEFINITION

Liquidated Damages - Liquidated damages are a specific sum (or a sum readily determinable) of money stipulated by the contracting parties as the amount to be recovered for each day of delay in delivery of the product or completion of the contract. They do not represent actual damages

but are established in the initial contract as a substitute for actual damages. They should represent, however, the most realistic forecast possible of what the actual damages are likely to be.

DISCUSSION

Liquidated damages are a widely used method of ensuring contractors perform timely. These provisions are regularly used in construction contracts and sometimes in supply and service contracts.

Liquidated damages clauses are most appropriately used when:

- **The time of delivery or performance is of particular importance and you may reasonably expect to suffer damage if the delivery or performance is delinquent; and**
- **The extent or amount of such damage would be difficult to prove.**

When determining whether to use a liquidated damages clause, you will wish to consider such factors as:

- **The probable effect on pricing and competition; and**
- **The costs and difficulties of contract administration.**

Liquidated damages may be used for supplies, services and construction.

Best Practices

Rate Determination - The rate of liquidated damages must be a reasonable estimate to compensate for possible damages and not be so large as to be construed as a penalty. If it is construed as a penalty it will be held unenforceable. The most prudent approach is to formulate the liquidated damages on a case-by-case basis. You will find it useful to briefly document the calculation of the rate of damages each time you use liquidated damages in a contract and keep the documentation on file. Appendix B.3 is an example of a *Liquidated Damages Checklist* being used by a Transit Authority.³⁵ Once liquidated damages are included in a contract, you will be unable to recover actual damages in many jurisdictions.

Application - When it is determined that a liquidated damages clause will be included in the contract, the applicable clause and appropriate rate(s) must be contained in the solicitation. For construction contracts, the rate to be assessed can be for each day of delay, and the rate typically, at a minimum, covers the estimated cost of inspection and superintendence for each day of delay

³⁵ - Bay Area Rapid Transit District (BART) Procurement Manual, Rev 4, July 20, 1994, Attachment Y.

in completion. If you will suffer other specific losses due to failure of timely completion, the rate can also include an amount for these items (for example, the cost of substitute facilities or the rental of buildings or equipment). The contract may include an overall maximum dollar amount or period of time, or both, during which liquidated damages may be assessed. This will help ensure that there is not an unreasonable assessment of damages.

It is important to note, that in your establishment of liquidated damages, you may use whatever consequential damages may result from a failure to deliver or perform, even damages for items which are not within the scope of the grant. However, it must be understood that all liquidated damages collected from the contractor must be credited to the grant and treated as a reduction to the allowable costs of the grant, in accordance with § 13 of FTA Circular 4220.1E. This will have the effect of making the funds collected (or the contract price reduction taken) available to the grantee for other activities/costs which are within the scope of the grant. In other words, while you may use the incurred cost of activities which are not within the scope of the grant to estimate and establish liquidated damages amounts, you will not be able to directly apply the collected damages to those impacted activities unless they are within the scope of the grant. The funds returning to the grantee must be credited to the grant where they become available for other activities which are within the scope of the grant.

Collection - If your agency has a financial obligation to the contractor under the contract, you may simply credit the amount of liquidated damages due from the contractor to your agency as payment by your agency of part of its remaining obligation to the contractor. Some contracts in which liquidated damages are particularly critical contain retainage provisions which are activated when liquidated damages are anticipated. In most jurisdictions you may also have a right of offset to credit the liquidated damages as payment to the contractor under other contracts it holds with your agency. If you decide to pursue this approach be sure you comply with the FTA approval requirements in Circular 4220.1E concerning the crediting of the project account with the amount of the liquidated damages. Finally, like any claim, you may settle your claim for liquidated damages in exchange for credit on future purchases such as spare parts or other items within the scope of the contract.

Excusable Delay - Contracts with liquidated damages clauses should also contain excusable delay clauses. These typically provide that if the contractor is delayed by certain specified causes that are beyond the contractor's control (e.g., weather, strikes, natural disasters) then the resulting delay is excused and liquidated damages will not be assessed. Whenever a contractor incurs liquidated damages, the precise counting of each day's delay based on these conditions directly affects the sum paid; therefore, it is worth making the calculation of delay in your contracts as clear as possible. When excusing construction delay caused by rainfall beyond normal, for example, you may specify in the contract what normal rainfall is and how the number of days of greater than normal rainfall will be computed.

Substantial Completion - Liquidated damages are not assessed after the date on which the work is substantially completed. Substantial completion is usually defined as the time when the construction site or the supplies delivered are capable of being used for their intended

purposes.³⁶ There is no predetermined percentage that will establish substantial completion and the decisions place more emphasis on the availability of the work for its intended use than on the use of formulas as to the percentage of completion of the work.³⁷

8.2.3.1 Relationship with Default Termination

DISCUSSION

When a contract containing liquidated damages is terminated for default the contractor will be liable for both liquidated damages and the excess costs of reprocurement (i.e., the amount by which the replacement contractor's price exceeds the terminated contractor's price). You have an obligation to the defaulting contractor to mitigate both his liquidated damages and the excess reprocurement costs. This means that you need to not unduly delay your termination for default action once the contractor is in default, and you will need to take expeditious action to resolicit bids/proposals for the supplies or work not performed. The time period for the liquidated damages will be the time between the contractually required date of completion of the defaulted contract and the actual completion date of the new contract **assuming there is no unreasonable delay in awarding the new contract.** Contractors will not be assessed liquidated damages for any period of delay caused by your agency. This reprocurement must not only be done expeditiously to mitigate liquidated damages but must also be in accordance with sound procurement procedures, producing a fair and reasonable price, so as to mitigate excess reprocurement cost damages. The contract to reprocure should be awarded competitively, with bids/offers solicited from a sufficient number of competent potential sources to ensure adequate competition.

8.2.4 Intellectual Property Rights

8.2.4.1 Disclosure of Trade Secrets

DEFINITIONS

Trade Secret - A plan, process, tool or other intellectual property which is used in some process of commercial value and which is known to a group of individuals who have been intentionally restricted by the trade secret owner. The key attribute of a trade secret is that the owner has

³⁶ - Theon v. United States, 765 F.2d 1110 (Fed. Cir. 1985); Central Ohio Bldg. Co., PSBCA 2742, 92-1 BCA ¶ 24,399.

³⁷ - Electrical Enters., Inc., IBCA 972-9-72, 74-1 BCA ¶ 10,400.

diligently and effectively restricted knowledge so that its competitors cannot obtain the information.

DISCUSSION

If you gain access to trade secrets either to evaluate the offer or to use and support use of the product or service, you may undertake an obligation to protect the trade secret. More particularly, there may be a direct conflict between the supplier's interest in the trade secret, and sunshine laws that require you to disclose any information upon request. By not retaining the proprietary documents or by use of intermediaries, you may be able to reduce the potential for a violation of trade secrets.

The laws permitting public access to government data vary by state. It is helpful to contractors to disclose your obligations under the laws in any solicitation document which calls for you to receive confidential information from a supplier. Consideration for the suppliers' legitimate interests will be an important factor in their continuing willingness to participate in your programs.

Best Practices

Return Data - One method of accommodating the supplier's interest in the confidentiality of the data is to return all the documents to the supplier. This is particularly feasible at the conclusion of a procurement in which you have been evaluating known trade secrets.

Inspect Data Off Site - If concerns about trade secrets and confidential information are particularly acute, you may find it advantageous to visit the contractor's premises and inspect the information or materials there, returning with only the minimum necessary data in recorded form.

Third Parties - Another way to resolve the conflict is to use a third party (e.g., one of your advisors) to evaluate the data or retain the data. The possession of data by an agent of a public agency is sometimes also subject to action under public access laws. However, this method is common in software licensing agreements, where a trustee retains confidential source code data until specified conditions occur under which the supplier has agreed that the data can be disclosed to the public agency.

Opportunity to Defend - A final strategy is to incorporate into your contract clauses a provision granting (or requiring, depending on the circumstances) the owner of the trade secret the ability to defend your agency in any action against your agency to force disclosure. Often, this takes the form of the contractor indemnifying your agency for your cost in defending against disclosure, or, at your agency's option, the contractor's own attorneys undertaking the defense.

8.2.4.2 Contract Work Products, Patents, and Copyrights

REQUIREMENT
Appendix A.1 of this Manual contains the requirements for intellectual property rights created under research and development contracts. These requirements apply only where a primary purpose of the contract is research or development.

DISCUSSION

In research and development contracts, you are required to obtain certain rights in the intellectual property created for FTA, and also, incidentally, to obtain indemnification for FTA in case the contractor violates another's rights. A clause satisfying these requirements is contained in Appendix A.1.

In contracts that are not primarily research and development contracts, you may also consider including portions of these provisions for your agency's own benefit. You may consider this where intellectual property (e.g., computer software) will be developed with your funds as part of a larger effort which is not developmental.

In contracts that involve the use but not the development of intellectual property (e.g., the use of patented equipment) indemnification against the contractor's violation of another's rights may be advantageous.

Best Practices

Indemnification - The indemnification provision, in case the contractor violates the intellectual property rights of a third party, (e.g., reproduces copyrighted material or incorporates a patented device in your equipment) is a useful provision wherever intellectual property is involved. Even though you may have little knowledge of the intellectual property the contractor is using, the intellectual property owner may name you in the suit and you may have more funds to pay damages than does your contractor.

Secure Support Rights - When you take delivery of intellectual property which you will need for your program, you will also need to carefully anticipate and define your agency's rights to use, modify, or disseminate the material to others. If licenses control the software or patents control the components of your vehicles, you may wish to obtain the right to reproduce the intellectual property for your agency's own internal use, without the right to resell it or distribute it outside your agency. Whether the contractor is willing to grant that right depends on the practices in the industry, the competitive value of the intellectual property, and the contractor's policies. If a practice is not well-established, the matter may have to be addressed in pre-bid discussions or in negotiations. Where the contractor is unwilling to grant access except through additional purchases, the contractor may be willing to place the intellectual property in a trust arrangement

whereby the trustee would grant you access in case of the contractor's demise or inability to support your ongoing use of the product.

Evolving Law - The law of intellectual property, particularly as it pertains to information technology, is evolving rapidly. If you are involved in procuring software or other intellectual property with any substantial value, you may wish to have attorneys who are current in this area review your contract provisions.

8.2.5 Termination

REQUIREMENT
<p>§ 15.b of FTA Circular 4220.1E requires grantees to include provisions in their contracts and subcontracts that allow for:</p> <ul style="list-style-type: none">b. Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of \$10,0000.)

DISCUSSION

It is sometimes necessary to end a contractual relationship prior to the completion of the work called for in the contract. In the public sector, when that relationship is ended because of a problem with the contractor's compliance with one or more terms of the contract, that termination is most commonly referred to as a *termination for default* or a *termination for cause*.

When the public agency decides to end the contract for a reason other than the default of the contractor, that termination is most frequently referred to as a *termination for the convenience of the public entity*.

If you do not plan for the possibility of one or the other of these events occurring in your contractual relationships, through the careful drafting of clauses which define the rights and obligations of the parties under a default and convenience situation, the consequences can be substantial from a monetary and contract performance standpoint.

Because of the nature of the different types of contracts, you may want to consider having different termination clauses for fixed price as opposed to cost reimbursement contracts.

Because of the different nature of the product or services being bought, you may want to have different termination clauses for construction, supply, and services contracts, including professional services.

You may want to have an abbreviated termination clause for contracts below a dollar threshold (say \$100,000). Likewise for purchase orders, you will need to decide how sophisticated you want these to be.

You need to address *partial* as well as *complete* terminations.

8.2.5.1 Termination For Convenience

DISCUSSION

The development of clauses allowing the government to terminate contracts for its convenience was a necessity growing out of the major wars and the need to end the large number of procurement contracts once the wars were ended. Without such clauses the government could terminate its contracts but such action constituted a breach. This meant having to pay profits to contractors on unperformed work (anticipatory profits). Thus the need for and the development of these convenience termination clauses, which give the government the right to terminate without cause and which limit the contractor's recovery of profit based upon the work actually performed up to the point of termination.

Best Practices

You will note that the FTA Circular requires a clause which defines "the manner by which the termination will be effected and the basis for settlement". Appendix A.1, Model Contract Clauses, section 21, contains model clauses with suggested language for both convenience and default terminations. These model clauses are very broad in their definition of the basis for settlement. For example, while the clauses clearly limit the contractor's profit to work actually performed, and they commit to pay the contractor its costs, they do not define how those costs will be determined, i. e., the *cost principles* which will be used to determine allowable costs. It is highly recommended that you supplement these clauses to stipulate the *cost principles* which will be operative in the event of a termination, and which will determine which costs are allowable and which are not. By using an objective and clearly defined method for determining allowable costs you will avoid problems which may otherwise arise in the negotiation of final costs.

The American Public Transit Association has published a procurement manual with a Termination for Convenience Clause referencing Part 49, *Termination of Contracts*, of the Federal Acquisition Regulations (48 CFR 49) as the basis for settlement of claims.³⁸ Another approach is to reference the FAR, Part 31.205, which deals very comprehensively with *Selected Costs* and their allowability.³⁹

³⁸ - American Public Transit Association, 1201 New York Avenue, N. W., Suite 400, Washington, D. C. - *Standard Bus Procurement Guidelines* § 2.2.6.1, January 1997. Phone: (202) 898-4089 to order copies.

³⁹ - Washington Metropolitan Area Transit Authority - *Procurement Procedures Manual* § 1311.2, Dec. 1994.

The APTA approach of referencing FAR Part 49 as the basis for settlement of terminations for convenience would seem to be a very effective solution to the problem of defining the basis for settlement. Part 49.113 of the FAR incorporates Part 31, *Contract Cost Principles and Procedures*, thus covering all the normal cost issues which arise on cost-type contracts, but going beyond the normal to define those costs and issues peculiar to terminations in the rest of FAR Part 49. The termination clauses themselves may be found in FAR Part 52, and you will see that they refer to both Part 31 and Part 49 of the FAR in order to define the cost standards to be used for the settlement.

Suggested termination clauses are also contained in the ABA's *Model Procurement Code for State and Local Governments* and implementing suggested regulations.⁴⁰

8.2.5.2 Partial Terminations

DISCUSSION

Your Termination for Convenience clause must include a provision allowing for a partial termination of the work, in which case the contractor must continue with the unterminated portion. The Federal government clause at FAR 52.249-2(k) allows the contractor to file a proposal for an equitable adjustment of the price(s) for the continued portion of the contract. Note that the model clauses in Appendix A.1 do not address this issue of an equitable price adjustment for the continued work, and you should consider this provision as a matter of equity to the contractor. This price adjustment would allow the contractor to recover those costs of a fixed nature which he would have recovered in the prices of the terminated work, had there been no termination. This is not anticipatory profit but recovery of fixed overhead.⁴¹ An example might be the rental of a facility whose costs would have been recovered over all the deliverable units of the original contract but which can only be recovered over a smaller number of units on the partially terminated contract, assuming you allow a price adjustment for the unterminated portion of the contract.

8.2.5.3 Termination for Default

DISCUSSION

Fixed Price Supply Contracts - If you are using a default termination clause similar to the federal clauses, the termination is likely to have the following effects:

⁴⁰ - See the discussion of how this publication may be obtained in Note 3. under Section 8.1.1.

⁴¹ - Wheeler Bros., ASBCA 20465, 79-1 BCA § 13,642.

- **Your agency is not liable for the costs of unaccepted work. The contractor will only be paid for work which you accept.**
- **You are entitled to a return of all progress, partial, or advance payments.**
- **You have the right to take custody of the contractor's material, inventory, construction plant and equipment at the site, and of the drawings and plans, with the price to be negotiated.**
- **The contractor will be liable for the excess costs of reprocurement or completion.**
- **The contractor will be liable for either actual damages or liquidated damages if your contract provides for them.**

Services and Construction Contracts - Some of the above consequences for supply contracts are also applicable to services and construction contracts but a contractor furnishing services or construction will be entitled to payment for work that was properly performed prior to the default termination. Under supply contracts the contractor will not be paid costs for producing supplies not accepted, whereas services and construction contractors can recover costs because your agency will be seen as having benefited from the contractor's partial performance in the services rendered or the improvements made to your property. ⁴²

Best Practices

Defining "Default" - The clause must define what "default" means -- i.e., failure to deliver the supplies or perform the services within the time specified in the contract, failure to make progress so as to endanger performance of the contract, refusal or failure in a construction contract to prosecute the work or any separable part within the time specified in the contract.

Excess Reprocurement Costs - The model contract clauses in section 21 of Appendix A.1 include default termination clauses for various types of contracts. You will need to decide if you wish to hold the contractor responsible for excess reprocurement costs and include an appropriate provision in your clause. Only the construction contract termination clause [21.(h)] in Appendix A.1 includes excess reprocurement costs.

The APTA bus procurement *Guidelines* at § 2.2.6.2 (see note 20 in this chapter) include a provision for excess reprocurement costs for "similar supplies or services."

⁴² - John Cibinic, Jr. and Ralph Nash, Jr. *Administration of Government Contracts*. Third Ed. Washington, D.C.: George Washington University, 1995.

Excusable Reasons for Non-performance - The clause typically defines acts or events that will excuse the contractor's default - i.e., causes beyond the control and without the fault or negligence of the contractor, such as acts of God, unusually severe weather, etc.

Conversion to Convenience Termination - If you terminate a contract for default, and it is later determined that the contractor was not in default or that the default was excusable, it would be very helpful if your default termination clause specifically stated that the termination will be treated as if it had been issued for the convenience of the agency. This will act to limit your liability for a wrongful termination by invoking the procedures of the convenience termination clause, thus precluding the contractor from recovering anticipatory profits. The default termination clauses in Appendix A.1 contain this stipulation.

Notice Provisions - The clause typically defines what kind of written notices, if any, must be furnished to the contractor prior to the termination taking place - i.e., *cure* and *show cause* letters. Within a specified time after you notify the contractor in writing to *cure* the deficiency in performance, the contractor has the opportunity (without jeopardy of immediate termination) to *show cause* why it should not be terminated; it may accelerate performance, present new information, or offer additional promises. If the contractor does not successfully show that it should not be terminated, your agency may then proceed with a termination for default. If your clause grants the contractor a cure period, you may wish to specify exceptions such as where default is necessary to take over the work in the interest of public safety.

Acronyms

ASBCA - Armed Services Board of Contract Appeals

BCA - Board of Contract Appeals

IBCA - Department of Interior Board of Contract Appeals

PSBCA - Postal Service Board of Contract Appeals

Chapter 9

9 - Contract Administration

9.1 Documentation of Contract Administration (5/96)

9.2 Changes (2/99)

9.2.1 Contract Scope and Cardinal Changes (10/99)

9.2.2 Cost/Price Analysis of Changes (2/99)

9.2.3 Construction Changes (2/99)

9.2.3.1 Differing Site Conditions (2/99)

9.2.3.2 Field Change Orders (2/99)

9.2.3.3 Pricing of Construction Changes (2/99)

9.2.3.4 Variations in Estimated Quantities (2/99)

9.2.3.5 Delays (2/99)

9.2.3.6 Acceleration (2/99)

9.3 Improving Vendor Delivery Performance (10/00)

9.4 Approval of Subcontractors (11/03)

9.1 DOCUMENTATION OF CONTRACT ADMINISTRATION

REQUIREMENT

In listing the "General Procurement Standards Applicable to Third-Party Procurements," FTA has established two standards that address contract administration documentation as opposed to procurement ¹ administration documentation:

- b. Contract Administration System – Grantees shall maintain a contract administration system that ensures that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders. . . .
- k. Responsibility for Settlement of Contract Issues/Disputes - Grantees alone will be responsible in accordance with good administrative practice and sound business judgment for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to source evaluation, protests, disputes, and claims. These standards do not relieve the grantee of any contractual responsibility under its contracts.

¹ - See § 7.i., FTA Circular 4220.1E, and discussion in Section 2.4.1, "File Documentation."

FTA will not substitute its judgment for that of the grantee or subgrantee, unless the matter is primarily a Federal concern. Violations of the law will be referred to the local, state, or Federal authority having proper jurisdiction.²

DEFINITIONS

Contract Administration - The post-award administration of the contract to ensure compliance with the terms of the contract by both the contractor and the Governmental entity.

Contract Administration File Documentation - The documentation contained in the contract file maintained by, or on behalf of the contracting officer. It reflects the actions taken by the contracting parties in accordance with the requirements of the contract and documents the decisions made, and the rationale therefore, of matters which may result (or have resulted) in controversy or dispute.

Procurement File Documentation - The documentation contained in a procurement file which details the history of the procurement through award of the contract. It includes, at a minimum, the rationale for the method of procurement, the selection of the contract type, the reasons for selection or rejection of the contractor, and the basis for the contract price.

DISCUSSION

Now that your contract has been awarded, performance is set to begin. It is important to get off to the right start in terms of documenting the administration of the contract and identifying what information should be maintained in the contract administration files. Different people involved in the project (QA, engineers, inspectors, financial, DBE office, safety, etc.) may have their own individual files relating to the contract reflecting their involvement with the administration of the contract, but it is good practice for the procurement official to maintain the "official" contract file. The "official" file would include all official correspondence relating to the administration of the contract so as to verify the contractor's adherence to the terms of the contract and demonstrate that the agency is following good administrative practice and sound business judgment in settling all contractual and administrative issues arising during contract performance.

Purpose

Any contract involving the expenditure of public funds is subject to review/audit during and after performance to ensure that, at the very broadest level, the Government got what it paid for. This

² - § 7.k. FTA Circular 4220.1E. See also the discussion of the documentation required for the settlement of claims and disputes found in Paragraph 7, Chapter I, FTA Circular 5010.1C, "Grant Management Guidelines," dated 10/1/98. As appropriate, some of these requirements will be discussed later in the "Best Practices" portion of this section.

concept means that at the contract administration level, you want the file (standing alone and without need of interpretation or augmentation of the contract administrator or other staff element) to demonstrate that the contracting officer and the contractor have complied with the terms of the contract (i.e., bonds have been submitted, contractual issues requiring the approval of the contracting officer have been submitted and approved, requests for payment have been submitted, reviewed, approved, and processed, etc.) and that contractual and administrative issues in dispute have been addressed and settled in accordance with good administrative practice and sound business judgment.

Best Practices

File Contents - For sealed bid procurements and competitive negotiations, consider including as standard practice in the contract administration file the following:

- The executed contract and notice of award;
- Performance and payment bonds, bond-related documentation, and correspondence with any sureties;
- Contract-required insurance documentation;
- Post-award (pre-performance) correspondence from or to the contractor or other Governmental agencies;
- Notice to proceed;
- Approvals or disapprovals of contract submittals required by the contract and requests for waivers or deviations from contractual requirements;
- Modifications/changes to the contracts including the rationale for the change, change orders issued, and documentation reflecting any time and or increases to or decreases from the contract price as a result of those modifications;
- Documentation regarding settlement of claims and disputes including, as appropriate, results of audit and legal reviews of the claims and approval by the proper authority (i.e., city council, board of directors, executive director) of the settlement amount;
- Documentation regarding stop work and suspension of work orders and termination actions (convenience as well as default); and
- Documentation relating to contract close-out.

For small purchases and micro-purchases, you may wish to automate the documentation or keep some of the above elements on a standard record.

Administration Duties - Every type of contract will have different contract administration actions and the documentation required to support that administration will differ as well. Supply contracts have different specific administrative actions than construction contracts do just as fixed price contracts are administered differently than cost-reimbursement contracts. The FAR has an extensive listing of contract administration functions that are considered "normal" and you might want to review them to see what might be applicable to your particular contract.³

File Location - On any given contract, there may be a number of different agency personnel involved in monitoring various aspects of the administration of the contract such as the maintenance department quality control office, the engineering department, the construction management office, the safety office, the disadvantaged business department, and the finance department. In some agencies, these offices may have official contract roles for which they will be maintaining an "official" file as to their delegated responsibility. For instance, your contract may have a "contracting officer's representative" or "contracting officer's technical representative" that has delegated authority from the contracting officer to approve submittals and payments. Your agency may have delegated to your program office the authority, up to a certain dollar amount, to issue change orders and settle claims. In all situations, whether the contractual role is performed by the contracting officer or another designee, the files should be documented so that it would be possible to recreate, from the files alone, what happened and how issues were resolved.⁴

9.2 CHANGES

REQUIREMENT
<p>49 CFR § 18.30 <i>Changes</i> discusses certain classes of changes which require grantees to obtain the prior written approval of the Federal awarding agency.</p> <p>FTA Circular 4220.1E paragraph 9.h. states:</p> <p style="padding-left: 40px;"><i>A contract amendment or change order that is not within the scope of the original contract is considered a sole source procurement . . .</i></p>

DEFINITIONS

Contract Modification - Any written change in the terms of the contract.

³ - FAR § 42.302.

⁴ - It is important that the files stand on their own because at the time a matter comes into controversy or at the time of a post-contract performance audit or review. The key characters may not be available (dead, moved away, terminated from employment, etc.) to respond to those issues.

Bilateral Contract Modification - A modification which is signed by the Contractor and the Contracting Officer; also referred to as a *supplemental agreement*. They are used to (1) make negotiated equitable adjustments to the contract price, delivery schedule and other contract terms resulting from the issuance of a change order, (2) definitize letter contracts, and (3) reflect other agreements of the parties modifying the terms of the contract.

Unilateral Contract Modification - A contract modification that is signed only by the Contracting Officer. They are used to make administrative changes, issue change orders, make changes authorized by clauses other than a *Changes clause* (e.g., *Options clause*), and issue termination notices.

Administrative Change - A unilateral contract change, in writing, that does not affect the substantive rights of the parties (e.g., changes of address for submittals of documents, reports, etc.).

Changes Clause - A clause which permits the grantee Contracting Officer to make unilateral changes, in designated areas, *within the general scope of the contract*, to be followed by such equitable adjustments in the price and delivery schedule as the change makes necessary. Although the grantee has a unilateral right, two general principles are important:

The right exists only because it is specifically conferred by the terms of the contract; and

When such unilateral rights are exercised, the grantee has an obligation to adjust the price and/or other provisions to compensate for the alteration in the contractor's obligations.

Change Order - A written order, signed by the Contracting Officer, directing the Contractor to make a change that the *Changes clause* authorizes the Contracting Officer to order without the Contractor's consent.

Cardinal Change - A contract change which is "outside the scope" of the original contract, and thus not within the authority of the Changes clause to order. Such changes are "sole source procurements, and must be processed according to the requirements of FTA Circular 4220.1E, paragraph 9.h. (See Section 9.2.1 *Contract Scope and Cardinal Changes*.)

Constructive Contract Change - A change to a contract resulting from the conduct of the grantee's officials that has the effect of requiring the Contractor to perform additional work. A *constructive change* results from the acts, written or oral, or from the omissions of the grantee's officials, which have the same effect as if the Contracting Officer had issued a formal, written change order. Actions giving rise to constructive changes should, of course, be avoided. Such changes represent actions which usually exceed the authority of the individual responsible for them, e.g., improper technical direction by the Technical Officer which is actually a change to the contract. When these actions occur, contractors need to be advised as part of the terms of their contracts to bring any such actions to the immediate attention of the Contracting Officer so

that an official determination can be made by the appropriate grantee officials and proper directions given in writing under the Changes clause. Some common examples are:

- Specifications or contract provisions that are "impossible to perform."
- Specifications that are ambiguous.
- Drawings that contain errors, omissions or inconsistencies.
- Grantee-provided information that is late, defective, etc.
- Technical direction by personnel that modifies the expressed terms of the contract.
- Acceleration of work, where the grantee insists that the contract delivery schedule be met despite the Contractor's valid claims of excusable delays.
- An inspector's interpretations of test specifications, procedures, methods, conditions and results that go beyond a reasonable interpretation of the specification.

Deductive Change - A change resulting in a reduction in the contract price because of a net reduction in the Contractor's work.

Equitable Adjustment - An adjustment in the contract price, delivery schedule or other terms of the contract arising out of the issuance of a *change order*.

DISCUSSION

49 CFR § 18.30 *Changes*, requires grantees to obtain the approval of the awarding agency (FTA) whenever a change would result in the need for additional funding from the awarding agency, and for other specified situations which grantees should be aware of.

FTA Circular 4220.1E paragraph 9.h. concerns the issue of contract changes and whether they are *within the scope of the original contract*. This issue is discussed in Section 9.2.1 *Contract Scope and Cardinal Changes*.

Purpose

The Changes clause has several purposes:

- (1) To give the grantee flexibility to order changes in the work, which may be necessary due to advances in technology or changes in the grantee's requirements.
- (2) To give the Contractor a method of suggesting changes to the work, thus improving the quality of the contract end-items. The equitable adjustment provisions of the

Changes clause will encourage the Contractor to suggest improvements when those suggestions will increase the contract price. When, however, the situation calls for suggestions regarding dollar savings, the Changes clause may not incentivize the Contractor if it stands to lose the dollar savings because of a price reduction in the contract. For this reason, *value engineering clauses* are included in contracts.

- (3) To give the grantee authority to order additional work which is "within the general scope of the contract, and thereby avoid having to procure this work as a "new procurement with all of the time and expense associated with another solicitation.
- (4) To require the Contractor to proceed with the changed work and resolve the issue of compensation later. This is important since it gives the grantee a contract right to order changes without having to agree beforehand on the price of the work. Emergency situations can thus be handled expeditiously without placing the Contractor in a position of demanding a certain amount of compensation before the work can proceed. In the event of a failure to agree on price, the issue can be resolved by a third party in accordance with the dispute procedure in the Disputes clause of the contract. But disputes over compensation will not impede the progress of the contract as changed.

Best Practices

National Transit Institute - The National Transit Institute (NTI) offers several in-depth courses for FTA which would be of great value to grantees who have to manage contracts with significant change order activity.⁵

Grantee third party contracts should contain a *Changes* clause. The language of the clause may differ depending upon the nature of the contract and the end-item being procured. The American Bar Association (ABA) recommends several different *Changes* clauses in its *Model Procurement Code for State and Local Governments*. There is a suggested clause for *supply* contracts and another for *construction* contracts.⁶

The *Federal Acquisition Regulation* covers the subject of changes within Part 43 *Contract Modifications*, with alternative contract *Changes* clauses in Subpart 52.243. The Federal clauses are tailored to the specific contracting situation, e.g., fixed-price supply, construction, services, cost-reimbursement, etc. The Federal clauses direct the Contractor to proceed with the work in accordance with the change order directive and submit a proposal within 30 days, following

⁵ - National Transit Institute, 120 Albany Street, Suite 705, New Brunswick, NJ 08901-2163. Phone (732) 932-1700. FAX (732) 932-1707. Courses include: *An Effective Change Order Process*, *Management of Transit Construction Projects* and *Contract Administration*.

⁶ - MPC § R6-101.03 *Changes Clause* (supplies), and § R5-401.03 *Changes Clause* (construction).

which the parties are to negotiate an equitable adjustment to the price, delivery schedule and other affected terms. In the event of a failure to agree, the resolution is to be handled as a dispute in accordance with the *Disputes* clause of the contract. This provision is important because disputes over compensation do not delay the work. The Contractor is required to proceed with the work as changed and settle the issue of compensation later. The Contractor cannot quit work because of a disagreement over price.

Non-emergency changes - When time permits, the best procedure for issuing changes is to solicit a cost and technical proposal from the contractor *before the change is issued*, and to negotiate an equitable adjustment to the contract price, delivery schedule, etc. A bilateral supplemental agreement can then be issued setting forth the change in work and the adjustment to the contract price, etc.

Emergency changes - When time will not permit the negotiation of the change prior to issuance, it should be possible to obtain a "not-to-exceed" price from the Contractor prior to the beginning of work. A bilateral contract Change Order could then be issued defining the changed work, with a maximum/ceiling price which is to be negotiated at a later date, but *downward only*. This Change Order would have to be issued as a two-party modification because it contains a "not-to-exceed," maximum/ceiling price for the change, and the grantee could not unilaterally impose a ceiling price commitment on the Contractor. The Contractor would then submit a formal proposal within thirty days and negotiations would take place. A bilateral contract modification (supplemental agreement) would then be issued reflecting the equitable adjustment to the price, etc.

9.2.1 Contract Scope and Cardinal Changes

REQUIREMENT

FTA Circular 4220.1E paragraph 9.h. states:

A contract amendment or change order that is not *within the scope of the original contract* is considered a sole source procurement . . .

DISCUSSION

Changes clauses limit the authority of the issuer in two ways. First, they stipulate that changes must be "within the general scope of the contract." Second, they describe the types of changes that may be made. In order for the change to be binding on the Contractor, it must meet both tests. It must be within the general scope and be one of the types of changes described in the clause.

With respect to the FTA requirements governing changes, the change must be *within the scope of the original contract*. If it is not *within the scope*, it is considered a *cardinal change*. Such changes are not properly processed as changes under the Changes clause, but are

properly processed as *new procurements* according to the principles of FTA Circular 4220.1E 9.h. --*Procurement By Noncompetitive Proposals*.

Within the general scope - The meaning of this phrase is somewhat vague and has been the subject of much interpretation by various judicial bodies processing contractor protests and claims. The Federal Court of Claims coined the term "cardinal change" to describe those changes that are beyond the scope of the contract. There are various tests used to determine if a change is within scope. One test examines changes in the *nature of work* to be performed. Another looks at the *amount of effort* the Contractor is required to perform. Still another test concerns whether the proposed change is within the *scope of the original competition*.

Nature of work - In one case the court held that the changed work is considered to be within the general scope if it "should be regarded as having been fairly and reasonably within the contemplation of the parties when the contract was entered into."⁷ The Federal Court of Claims stated the test to be whether the work performed was "essentially the same work as the parties bargained for when the contract was awarded."⁸ In another case the court stated that a cardinal change occurs if the ordered deviations alter the nature of the thing to be constructed.⁹ The general principle appears to be that if the function or nature of the work as changed is generally the same as the work originally called for, the changes are considered to be within the general scope. For example, in a contract to build a hospital where there were many changes in the materials used, but where the size and layout of the building remained the same, the changes were held to be within the scope.¹⁰

Amount of effort - The second test for determining if a change is within scope concerns the amount of effort in terms of *work disruption* and *cost increases* experienced by the Contractor. In one case requiring a subcontractor to place backfill simultaneously with the work of other subcontractors, the change was considered so disruptive as to be a cardinal change because it added over 200% to the cost of the backfill work.¹¹ In another case the court decided to hold a trial on the cardinal change issue where there had been 130 changes, the time of performance had doubled, and costs of \$4.6 million were incurred

⁷ - Freund v. United States, 260 U.S. 60 (1922).

⁸ - Aragona Constr. Co. v. United States, 165 Ct. Cl. 382 (1964).

⁹ - Air-A-Plane Corp. v. United States, 187 Ct. Cl. 269, 408 F.2d 1030 (1969).

¹⁰ - See Aragona above.

¹¹ - Peter Kiewit Sons Co. v. Summit Constr. Co., 422 F.2d 242 (8th Cir. 1969).

above the contract price of \$5.8 million.¹² But it should be noted that contractors have rarely been successful in arguing for cardinal changes on the basis of *amount of effort*.

Scope of the original competition - Competitors sometimes protest the issuance of changes when they believe that a new competitive procurement process should have been used for the changed work. In deciding these cases, the courts have used the criterion of whether the change was within *the scope of the original competition*, i.e., what the competitors should have anticipated to be within the scope of the competition. An important factor to be considered is "whether the original solicitation adequately advised offerors of the potential for the type of changes during the course of the contract that in fact occurred . . . or whether the modification is of a nature which potential offerors would reasonably have anticipated under the changes clause."¹³ This issue is an important one because the Changes clause lends itself to potential abuse in the matter of ordering quantities not originally competed. This practice tends to become an expedient to avoid the time and expense of a new procurement action, but it is improper when the additional quantities exceed the scope of the original competition. Such additional quantities should either be bought through a new competitive procurement, or processed as a sole source action with the requisite organizational approvals.

Number of changes - The *number of changes* issued has not been a determining factor as to whether the changes cumulatively are within scope. The Board of Contract Appeals held that approximately 100 change orders was not beyond the general scope.¹⁴ Another case held that 200 change orders was not beyond the general scope.¹⁵

Time of issuance - The *time of issuance* of the changes has not been considered a factor. In one case the Contracting Officer issued six changes after completion of the work, which extended the contract period by 120 days, and the court held that these changes were within the general scope.¹⁶

Changes in quantity - *Major changes in the quantity* of the work have been held to be cardinal changes. This principle applies to both additive and deductive changes. Major additions in the quantity should be processed as new competitive procurements. Large reductions in quantity should be processed as contract *termination actions*. The

¹² - Atlantic Dry Dock Corp. v. United States, 773 F. Supp. 335 (M.D. Fla. 1991).

¹³ - Neil Gross & Co., 69 Comp. Gen. 247 (B-237434), 90-1 CPD 212.

¹⁴ - Coley Properties Corp., PSBCA 291, 75-2 BCA 11,514.

¹⁵ - Reliance Ins. Co. v. United States, 20 Cl. Ct. 715 (1990).

¹⁶ - J.D. Hedin Constr. Co. v. United States, 171 Ct. Cl. 70, 347 F.2d 235 (1965).

Comptroller General has held that a change adding quantities *above the contractual maximums* was outside the scope and therefore a cardinal change.¹⁷

Collateral impacts of change – This criteria involves looking at all the various factors, such as changes in schedule, quantity, quality, and costs, no one of which may be sufficient in itself to render a change outside the contract’s scope, but the cumulative impact of the change being such as to alter the nature of the item being procured. For example, a change in specification from a gasoline to a diesel driven heater was outside the scope because the change required substantial alteration of other components: (1) it substantially increased the heater’s weight, (2) added an electrical starting system, (3) required a redesigned fuel control, (4) required a redesigned combustor nozzle, (5) altered the performance characteristics, (6) increased unit price by 29%, and (7) doubled the delivery schedule.¹⁸

Best Practices

Buying additional vehicles – In order to avoid the problem of having to conduct a new competitive procurement for minor increases in quantities, grantees should structure their initial competitive solicitation with option provisions for additional quantities that could conceivably be required. When there are no option provisions, however, and it becomes clear that increases in the quantity of vehicles are necessary, grantees should either conduct a new competition or process a justification for noncompetitive procurement (sole source) through the required internal approving official or board.

Changing bus specifications – Certain types of specification changes are clearly within the authority of the Changes clause. They satisfy all of the “within scope” criteria noted above. For example, changes to seating fabrics and colors, exterior paint schemes, signage, and floor coloring. Such changes are “reasonably within the contemplation of the parties when the contract was entered into,” and they do not alter the nature of the vehicle being procured.

Bus engine changes - There are other potential bus design changes, however, which may not be proper under the Changes clause. One of these would be a change in engine type, which was not *within the scope of the original competition*. For example, several manufacturers do not build buses with certain engine types (CNG or Diesel). Such a change would be one that was not *within the scope of the original competition* (i.e., what the competitors should have anticipated to be within the scope of the original competition). This type of change is so critical that it would have affected the original bidding seriously enough that another company could have won the contract.

¹⁷ - Liebert Corp., 70 Comp. Gen. 448 (B-232234.5), 91-1 CPD 413.

¹⁸ - American Air Filter Co., 78-1 CPD 136.

High floor vs. low floor buses - Another design change that would not be proper under the Changes clause would be a change from a “high floor” to a “low floor” configuration. The *cumulative impacts of the change* would be so serious that it would in fact be a “cardinal change.”

Construction contract changes – For a discussion of changes to construction contracts and the issue of the types of changes that would be “within scope” vs. “cardinal changes,” see section 9.2.3 *Construction Changes*.

9.2.2 Cost/Price Analysis of Changes

REQUIREMENT

Paragraph 10 of FTA Circular 4220.1E requires a cost or price analysis for every procurement action:

Grantees must perform a cost or price analysis in connection with every procurement action, including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, grantees must make independent estimates before receiving bids or proposals.

- (a) Cost Analysis - A cost analysis must be performed when the offeror is required to submit the elements (i.e., Labor Hours, Overhead, Materials, etc.) of the estimated cost; e.g., under professional consulting and architectural and engineering services contracts.

A cost analysis will be necessary whenever adequate price competition is lacking and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalogue or market price of a commercial product sold in substantial quantities to the general public or on the basis of prices set by law or regulation.

- (b) Price Analysis - A price analysis may be used in all other instances to determine the reasonableness of the proposed contract price.
- (c) Profit – Grantees will negotiate profit as a separate element of the price for each contract in which there is no price competition and in all cases where cost analysis is performed.
- (d) Federal Cost Principles – Costs or prices based on estimated costs for contracts under grants will be allowable only to the extent that costs incurred or cost estimates included in negotiated prices are consistent with Federal cost principles. Grantees may reference their own cost principles that comply with applicable Federal cost principles.

DISCUSSION

FTA Circular 4220.1E paragraph 10 requires that grantees perform a cost or price analysis, as appropriate, for every contract action, including change orders. Paragraph 10(d) requires the use of Federal cost principles, which are found in the Federal Acquisition Regulation Part 31, whenever grantees are negotiating costs or prices based on estimated costs. The nature of change orders is such that contractors will almost always be required to submit change order proposals which are based on estimated costs which are expected to be incurred as a result of the change order. Thus, change order proposals will almost always be subject to the Federal cost principles found in FAR Part 31 (or equivalent grantee cost principles). Grantees should ensure that their third-party contract provisions provide for the Federal cost principles, or equivalent grantee cost principles, in determining allowable costs for equitable adjustments arising out of changes to the contract. For a general discussion of cost and price analysis techniques, see Section 5.2 *Cost And Price Analysis*. For a discussion of price adjustment criteria for construction contracts, see Section 9.2.3.3 *Pricing of Construction Changes*.

9.2.3 Construction Changes

REQUIREMENT

§ 23 of the Master Agreement MA(12), *Construction*, requires grantees to provide and maintain competent and adequate engineering *supervision at the construction site* to ensure that the complete work conforms to the approved plans and specifications.

FTA Circular 4220.1E paragraph 10a. requires a *cost analysis* for every procurement action, including contract modifications and *change orders*. Paragraph 10e. of the Circular *prohibits cost-plus-percentage-of-cost* methods of contracting, including percentage of construction cost methods.

With respect to pricing methods, FTA Circular 4220.1E paragraph 7j states that *the Time and Materials* type of pricing requires that a determination be made that no other type of agreement is suitable and that a ceiling price be specified in the contract.

DISCUSSION

The issue of on-site supervision as it relates to the issuance of construction contract changes will be discussed in Section 9.2.3.2 *Field Change Orders*. The pricing of construction contract changes is discussed in Section 9.2.3.3 *Pricing of Construction Changes*.

Every construction contract should include a Changes clause giving the grantee the unilateral right to order changes in the contract work during the course of performance, and the Contractor the duty to proceed with the work as changed upon receipt of the change order, assuming that the change is within the scope of the contract. The Changes

clause must contain language deferring the pricing of the changed work until some later time, while obligating the Contractor to proceed with the work and resolve the issue of compensation later. Failure to reach an agreement on compensation would be a dispute to be processed according to the procedures of the *Disputes* clause of the contract.

It is not a best practice to issue change orders where the price and schedule for the changed work is not negotiated and agreed upon beforehand. However, in construction projects, proceeding with work prior to agreement may be necessary to avoid delay. In such cases, time and material records must be kept, and a price agreed upon as soon after the beginning of work as practicable. Grantees must ensure that they are authorized to do this under their own regulations.

The Federal clause for construction changes is found at FAR 52.243-4. It authorizes changes, within the general scope of the contract:

- (1) In the specifications (including drawings and designs);
- (2) In the method or manner of performance of the work;
- (3) In the Government-furnished facilities, equipment, materials, services, or site; or
- (4) Directing acceleration in the performance of the work.

The Federal clause also provides guidance on the processing of *claims* which the Contractor regards as "*constructive changes*," i.e., Government actions, directions, interpretations or determinations which were not identified as changes, but which cause the cost of the work or the time required to do the work to change.

The ABA Model Procurement Code (MPC) Changes clause for construction contracts is very broad in giving owners the right to order:

- (1) Changes in the work within the scope of the contract; and
- (2) Changes in the time for performance.

The MPC clause gives the Contractor *the duty to proceed with the work while the issue of compensation is being resolved*. This clause also contains a notice to the Contractor not to perform work above a certain dollar amount unless the change order has been signed by an appropriate fiscal officer or other responsible official *certifying that the funds are available* for the work being ordered.¹⁹

Within scope v. cardinal changes - Construction contracts are, of course, subject to the same criteria as other contracts with respect to the requirement that changes be *within the general scope of the contract*. See Section 9.2.1 *Contract Scope and Cardinal Changes*. A

¹⁹ - MPC R5-401.03 *Changes Clause*.

few observations can be made concerning construction contracts as they have been litigated in the Federal realm with respect to the within scope issue:

Changes in quantity - Increases in the quantity of the major items are not generally regarded as authorized by the *Changes clause*. For example, on a construction project, additional buildings may not be added by the *Changes clause*.²⁰ On unit price contracts, this rule regarding additional quantities has been interpreted to allow increases in the quantity of subsidiary items unless the variation is so large that it alters the entire bargain. For example, on a contract requiring the doubling of the amount of material for an embankment to build a levee, the court held that the change was beyond the scope of the contract.²¹ *Deletions* of major items or portions of the work are likewise not within the scope of the *Changes clause*. For example, buildings may not be deleted from construction contracts.²² However, deletions of portions of the work are permissible unless the deletion becomes so large as to alter the original bargain. When large deletions are necessary, they should be made under the *Termination for Convenience clause*.

Changes in time of performance - The Federal clause lists *acceleration of performance* as one of the types of changes permitted by the *Changes clause*. In contracts which do not contain the acceleration language, it is unclear whether such changes are permitted by the *Changes clause* or not. Some Federal Contract Appeals Boards have held that the contract schedule was part of the specifications, and therefore a permissible change. Grantees may wish to review their changes clause and add the ability to accelerate or delay performance. Another approach would be to state in the contract that the schedule was part of the specifications for purposes of ordering accelerated or decelerated performance under the *Changes clause*. Remember that having this ability under the *Changes clause* gives the grantee the right to change the schedule of work immediately and resolve compensation later, instead of having to agree on the price of the change before the schedule can be altered.

Changes in method or manner of performance - Changes in the method or manner of performance have traditionally not been a "changes issue" under the Federal clause because such changes altered the work itself and were seen as changes to the specifications. It is not necessary that the contract initially specify a certain method or manner of work in order to find a change if, in fact, the Contractor is ordered to perform in such a manner or use a method other than one that could have properly been used.

²⁰ - A-66501, 15 Comp. Gen. 573 (1935); B-95069, 30 Comp. Gen. 34 (1950).

²¹ - *Saddler v. U.S.*, 287 F. 2d 411 (Ct. Cl. 1961).

²² - *General Contracting & Constr. Co. v. U.S.*, 84 Ct. Cl. 570 (1937); *McMasters v. State*, 15 N.E. 417 (N.Y. 1888).

9.2.3.1 Differing Site Conditions

Unless the contract provides otherwise, the construction contractor will usually be held to bear the risk of unexpected subsurface site conditions. This creates a serious problem for the company wishing to bid on a construction project. The contractor must either perform a costly site inspection, even though there is no assurance that its bid will be successful, or it must include a substantial contingency in its bid price to cover the risk of the unknown site conditions. The latter alternative results in much higher bid prices to the owner than would be the case if the risk were not being assumed by the bidders. It is only where the contract contains a clause shifting the risk to the owner that the bidder can safely assume it will be compensated for "differing site conditions" or "changed conditions." For these reasons most construction solicitations will contain a "differing site conditions" clause describing the types of risk being assumed by the owner, promising the contractor an *equitable adjustment* if the defined conditions materialize.

The usual clause will refer to "*subsurface or latent physical conditions at the site differing materially from those indicated in the contract, or unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the contract.*"²³ The clause will normally require the Contractor to notify the owner prior to disturbing the site conditions so that the owner's representative can investigate the site and confirm the conditions alleged by the Contractor.

Equitable adjustments - The phrase *equitable adjustment* allows for considerable latitude in establishing the measurement of the compensation. The *equitable adjustment* includes added costs for any contract work, whether changed or unchanged by the unforeseen conditions; i.e., the Contractor is entitled to recover any increased costs for any portion of the contract work, presuming it can demonstrate that it will incur increased costs, including delay and impact costs, on account of the differing site condition.²⁴ In the event that the parties cannot agree on the amount of compensation, the clause will require the Contractor to proceed with the work and resolve the issue at a later date, which is the same procedure as the Changes clause.

This clause enhances the competitive bidding environment by allowing bidders to submit their best prices, without having to include substantial contingencies. It provides a mechanism to compensate the contractor through negotiation rather than litigation. The clause does not, however, automatically guarantee the contractor an adjustment; the contractor must prove that

²³ - ABA Model Procurement Code clause R5-401.06 *Differing Site Conditions Clause*. FAR 52.236-2 *Differing Site Conditions*.

²⁴ - *Kenny Constr. Co. v. Metropolitan Sanitary Dist.*, 309 N.E. 2d 221 (Ill. 1974).

the site conditions encountered differ materially from the conditions indicated by the owner's contract or from conditions ordinarily encountered.

9.2.3.2 Field Change Orders

REQUIREMENT

§ 23 of the Master Agreement MA(12), <i>Construction</i> , requires grantees to provide and maintain <i>competent and adequate engineering supervision at the construction site</i> to ensure that the complete work conforms to the approved plans and specifications.

Construction projects require on-site engineering supervision by a resident engineer/program manager. At the same time it is not feasible to have a contracting officer at each construction site. It is also inherent in the nature of construction projects that emergencies will occur which require immediate direction to the contractor to do changed work. For these reasons it has become generally accepted practice by most organizations doing construction contracting that some type of delegation of authority from the contracting officer to the resident engineer to direct field changes is essential. Delegations of authority to issue and/or negotiate field changes are the prerogative of the grantee. Where the grantee chooses to delegate authority to resident engineers, several procedures should be observed:

- (1) The grantee's procurement policies and procedures must clearly establish organizational responsibility and provide a general procedural framework for the process of contract modifications to construction contracts. This policy will clearly define which personnel are authorized to issue change orders, including the limits of their dollar authority.
- (2) The grantee should ensure that any person authorized to issue change orders has met certain educational, training and experience requirements. Suggested courses for resident engineers/project managers would include: ²⁵
 - Basic Contract Administration (1 week)
 - Cost and Price Analysis (1 week)
 - Contracting Officer's Representative Course (1 week)
 - Construction Contracting Basics (1 week)
 - Contracting by Negotiation (1 week)
 - Changes under Contracts (1 week)
 - Federal Contract Law (1 week)
 - Construction Claims (1 week)
 - Contracting by Sealed Bidding (1 week)

²⁵ - Courses of this nature are offered by Management Concepts, Inc., the U.S. Agriculture Department, (888) 744-GRAD, and the National Transit Institute at Rutgers University, (732) 932-1700.

- (3) Delegations of authority to issue field changes should be limited to those situations where time is critical; *where there is insufficient time to process the change through the contracting officer*. Where time permits, the change should be processed through the contracting officer, who would obtain a proposal from the contractor and conduct negotiations before the change is issued. The change could then be issued as a bi-lateral contract modification setting forth the changed work and the equitable price adjustment and time extension for the change. Where time is critical, however, the resident engineer would issue the change, furnish the contracting officer with an in-house cost estimate for the work, evaluate the contractor's proposal when received, and assist the contracting officer in the negotiation of the change.

9.2.3.3 Pricing of Construction Changes

Price adjustments under contract clauses - When a contract clause exists which addresses the action causing the change (e.g., the changes clause, differing site conditions clause, etc.), the contract clause will determine the manner of the price adjustment. For Federal contracts and many State and local contracts, the term *equitable adjustment* is used to describe the method of adjusting the contract price.²⁶ The term *equitable adjustment* includes an allowance for profit, while the term *adjustment*, which is used in the Federal *Suspension of Work* clause,²⁷ provides for an adjustment for increased performance *costs*, due to directed suspensions of work under this clause, but *not profit*. The specific language in the grantee contract clause will determine whether the adjustment is to include profit or will be limited to costs only. There are certain rules governing equitable adjustment methodology which have been developed in Federal cases, and these Federal contract rules have generally been adopted in cases involving non-Federal contracts as well. The Federal contract rules pertaining to *equitable adjustments* arising out of change orders on construction contracts are summarized below.

A. Basic Pricing Formula

The basic pricing formula for an *equitable adjustment* is "the difference between what it would have reasonably cost to perform the work as originally required and what it reasonably cost to perform the work as changed."²⁸ State courts have adopted the same basic formula for equitable adjustments. When repricing as a result of the change order, courts have limited the repricing to the changed work, without altering the original profit or loss position of the contractor. This is known as the "leave them where you find them approach." This rule would preclude a contractor from converting a loss to a profit or vice versa.

²⁶ - FAR 52.236-2 *Differing Site Conditions Clause*, and FAR 52.243-4 *Changes Clause*.

²⁷ - FAR 52.242-14.

²⁸ - *Modern Foods, Inc.*, ASBCA 2090, 57-1 BCA § 1229.

- a) Pricing the deleted work - Under the basic pricing formula, the amount of the adjustment for the deleted work is the cost that the contractor would have incurred had the change not been issued; i.e., had the work been performed. Usually one of the parties will argue that the amount should be the amount originally estimated by the contractor when the original bid was prepared. However, the courts have usually rejected this argument if better information is available showing what the contractor's actual cost of performance would have been had the change not been issued. The "would have cost" rule is applied to cases involving deductive changes or changes where work is deleted, and other work is substituted for the deleted work.
- In one Federal case, the contractor had failed to include costs in its original bid price for a certain specification requirement, which was later deleted by the Government. The contractor argued that the Government was not entitled to a price credit because there was nothing in the contractor's original price for the work, but the Board held that the Government was entitled to a price credit based on the amount that the contractor would have spent to comply with the deleted specification requirement.²⁹
 - In another case involving a change from underground electrical ducts and cable to an overhead system, it was determined that the original electrical work "would have cost" about \$61,000. The work as changed only cost about \$19,000. The Government argued for a price reduction of \$42,000, which was the net difference. The contractor, however, had only included about \$35,000 in its original bid for the underground work. The contractor argued that, if the Government's price reduction of \$42,000 were allowed, the contractor would actually be paying the Government \$7,000 on account of the changed work. The court, however, ruled for the Government, finding that the contractor's own negligent bid caused the problem, not the change order.³⁰ Here again we see the basic pricing formula applied -- the amount of the adjustment for the deleted work is the cost that the contractor would have incurred had the work actually been performed. The cost adjustment is not based upon the amount included in the contractor's original bid if that amount is not indicative of the cost to actually perform the work.
- b) Pricing the added work - The basic pricing formula requires that the contractor recover the increased cost of performing the work as changed. This is true even if the amount included in the original bid/contract was more than what was necessary for performance of the original work.

²⁹ - Noblebrook Contractors, Inc., ASBCA 9736, 1964 BCA § 4283, 1964 BCA & 4408.

³⁰ - S.N. Nielsen Co., v. U.S., 141 Ct. Cl. 793 (1958).

- In one case where the contract was improperly changed to require the contractor to comply with the Davis-Bacon Act, the contractor was entitled to an increase in the contract price even though its bid already included enough costs for Davis-Bacon wages.³¹

B. Exceptions to the Basic Pricing Formula

- a) Complete Deletion of a Severable Item - When the contract contains *severable items*, the *complete deletion* of such an item will result in an equitable adjustment which deducts the *original price of the deleted item as stated in the contract*. This is an exception to the "would have cost rule." Whether the contract items are *severable* or not depends on the provisions of the solicitation, the nature of the work, and the intentions of the parties. Merely because an item has a separate unit price in the contract does not make the item *severable*.
 - In a case where the Government awarded a contract for work to be performed in four phases and priced each phase separately in the original contract, a cancellation of one phase in its entirety resulted in a price reduction equal to the amount of the price for that phase in the original contract. This was proper even though the contractor had seriously overpriced that phase and had underpriced another phase.³²
- b) Advance Agreements in the Contract - The parties to the contract may agree in advance upon the methodology to be followed in making *equitable adjustments*. For example, the contract may state that equitable adjustments for deductive changes will be the unit prices included in the contract. Another approach to deductive changes is to state in a contract clause that price credits for deductions will be based upon estimated costs at the time the contract was made.
- c) Deletion of Minor Items - It is customary to use the contractor's bid price to delete relatively minor items. To attempt to base the adjustment on a "would have cost" approach may be costly without producing a better result, so courts usually follow the expediency of using the original bid price for deletion of minor items or work.

³¹ - B-E-C-K Christensen Raber-Kief & Assocs., ASBCA 16467, 73-1 BCA § 9884.

³² - Gregory & Reilly Assoc., Inc., FAACAP 65-30, 65-2 BCA § 4918. Holtzen Constr. Co., AGBCA 413, 75-2 BCA § 11,378.

C. Cost Impact on Contractor

The contractor's cost must be affected in order for there to be an equitable adjustment. The use of *market value* of the old/new work is generally rejected.³³

- a) Incurrence of Costs - A contractor must make payments or incur obligations which are greater than it would have incurred to do the original work. When no payment has yet been made, or when the loss is recoverable, costs are not considered incurred. For example, where the contractor's "loss" is covered by insurance, no costs are incurred and therefore no adjustment is due. In the case of a credit for decreased work, the amount of credit is the cost savings to the contractor. If the contractor realizes no savings from the change, then no credit will be due.
 - In a case where the Government waived a *requirement for an American product*, but the contractor had used foreign costs in its bid initially, the waiver did not result in cost savings to the contractor. The Court found that the Government was not entitled to a price reduction.³⁴
- b) Allowable Costs - Whenever a contract modification requires the submission of estimated costs for negotiation, as is the case in virtually all construction change orders, the cost principles in FAR Part 31 (or equivalent grantee cost principles) must be used to determine what is an *allowable cost*. This is true for all contracts, whether they be cost-type or fixed price. FAR 31 provides that allowable costs must meet all of the following tests:
 - Reasonableness;
 - Allocability;
 - In accordance with generally accepted accounting principles and cost accounting standards (if applicable);
 - Not excluded by specific contract provisions such as *advance agreements*.

D. Burden Of Proof

The party seeking the adjustment has the burden of proof in establishing the amount of the price adjustment. The grantee has the burden to prove, for example, how much price reduction is

³³ - Bruce Constr. Corp. v. U.S., 324 F.2d 516 (Ct. Cl. 1963).

³⁴ - L.G. Lefler, Inc. v. U.S., 6 Cl. Ct. 514 (1984).

appropriate for deleted work, while the contractor carries the burden of proving how much of a price increase it may be entitled to receive. To meet this burden, the party must show the *reasonableness of the claimed costs* and demonstrate that these *costs have a causal connection to the change or other action on which the claim is based.*³⁵

- a) **Causation** - The cost increase or decrease must be caused by the event for which an adjustment is being claimed. There must be a *relationship in time* between the costs and the event on which the claim is based. This relationship is demonstrated when the costs follow the event in a predictable sequence. Also, the costs must bear a logical relationship to the event, resulting from its occurrence.
- b) **Reasonableness of Amount** - FAR 31.201-3(a) places the burden of proof of *reasonableness* for both direct and indirect costs on the contractor. However, the *test of reasonableness* gives the contractor broad discretion in how it performs the work. A "reasonable cost" has been defined as follows:

"A cost is reasonable if, in its nature or amount, it does not exceed that which would be incurred by an ordinary prudent person in the conduct of competitive business."³⁶

E. Major Cost Elements

- a) **Labor** - The contractor bears the burden of demonstrating that the cost of its additional labor effort has been caused by the event on which the claim is based. In some cases the contractor may be able to segregate the cost of the changed work in its records, and thus demonstrate the additional labor hours due to the change. However, when it is impossible to segregate the additional labor hours resulting from the change or other action of the owner, courts have accepted an approach to pricing the change known as the *total cost method*. By this is meant *the total costs actually incurred compared to the original estimate. This method can only be used if:*
 - The original labor estimates in the contractor's bid are reasonable, based on objective, external evidence, and
 - The owner was solely responsible for the overrun--there must be no concurrent delays, etc.

³⁵ - Nager Elec. Co. v. U.S., 442 F.2d 936 (Ct. Cl. 1971). S.W. Elecs. & Mfg. Corp. ASBCA 20698, 77-2 BCA § 12,631 (1977), aff'd., 655 F.2d 1078 (Ct Cl. 1981).

³⁶ - Bruce Constr. Corp. v. U.S., 324 F.2d. 516 (Ct Cl. 1963).

- There is no other reliable method to establish the additional labor costs. If there is another method, the *total cost* approach cannot be used.³⁷

If the change disrupts the labor effort on unchanged work, having a "ripple effect or impact" on the effort required to do the unchanged work, the additional costs of performing the unchanged work are compensable.³⁸ One case of this nature involved a "disruption of the work because of the unexpected and excessive number of change orders."³⁹ Increases in labor costs are recoverable when a contractor incurs higher wage rates because of compensable delays in performing the work. Contractors are also entitled to compensation when there is a disruption to the work sequence, thus resulting in inefficiencies; for example, disruptions which preclude planned simultaneous work activities, or forced use of overtime work paid at premium rates, or delay of work because of unfavorable weather conditions.

- b) Field Overhead - *Field overhead* is the cost of maintaining the contractor's field operations staff, facilities and equipment at the job site. Field overhead includes the cost of personnel chargeable to the specific project, such as the salaries for office clerks, project supervisors, timekeepers and engineers. It may also include rental or ownership costs for on-site trailers, office equipment, utilities, telephones, automobiles, trucks, etc. *Field overhead* is different than *Home Office Overhead*, which are general costs of conducting the contractor's overall business and cannot be attributed directly to any one project.

Direct vs. indirect costs - In any proposal for a price adjustment arising out of a change order, it is always important to determine if the costs being proposed are direct or indirect (overhead) costs. If your contract includes a clause specifying the markup for field overhead--the percentage which will be allowed in the pricing of changes--then it is critical to ensure that the contractor is being consistent in its treatment of direct vs. indirect costs, and that there is no duplication of costs. For example, if the contractor's normal accounting practice is to include the cost of its salaried general foreman in the field overhead pool, then a change order claim cannot propose this foreman's salary as a direct labor cost because the cost is already included in the field overhead markup which is applied to direct labor costs. It is important, therefore, for the grantee's contract administrator to have an in-depth knowledge of all of the elements in the contractor's field overhead pool; that is, a good understanding of the various accounts which make up the pool. The contract administrator will then be in a position to evaluate the contractor's

³⁷ - Wunderlich Contracting Co. v. U.S., 351 F.2d 956 (Ct. Cl. 1965). Turnbull, Inc. v. U.S., 389 F.2d 1007 (Ct. Cl. 1967).

³⁸ - Paul Hardeman, Inc. v. U.S., 406 F.2d 1357 (Ct. Cl. 1969).

³⁹ - Clarke Baridon, Inc. v. Meritt-Chapman & Scott Corp., 311 F.2d 389 (4th Cir. 1962).

cost proposals and ensure that there is no duplication of costs because of the improper charging of overhead costs as direct costs. An audit of the Contractor's indirect cost pools may be necessary to obtain the required degree of information/knowledge concerning the composition of the indirect cost pools.

Extended performance - When the contractor is delayed or the contract performance period is extended by a change order or other action of the owner, the contractor will incur additional job site overhead expenses which are time-related. These will consist of additional costs for supervision, maintenance of trailers, telephones, insurance, etc. There are two ways to price these additional overhead expenses. The first is to total all of the job site overhead expenses for the entire project and divide this total by the number of days over which the costs were incurred in order to compute a daily overhead cost. This average daily overhead cost is then multiplied by the number of days of delay in order to compute the cost of the delay. However, this method of using the average daily cost may not produce an equitable result. For example, if the contractor is delayed in the earlier stages of a project when it has a full complement of supervisory personnel and equipment at the job site, the field overhead cost of a day's delay will be much greater than if it occurs at the end of the project when most of the supervisors have been released and the equipment has been removed. Because daily field overhead charges may vary materially depending on the stage of the project when the delay occurs, it may be more equitable to use another method of computing the field overhead delay costs. This method computes *the daily field overhead cost for the time period when the delay occurs*. In one Federal case involving this issue, the Government argued that the delay costs should be computed using the tail end of the project; i.e., the extended period of performance. The court, however, ruled that the delay damages should be calculated using *the specific time periods in which the delay occurred--the actual period of the work disruption*. The average daily field overhead costs during this period of actual work disruption were considerably higher than the daily costs at the tail end of the job, and the court chose a more equitable method of compensating the contractor for its actual costs during the period of work disruption.⁴⁰

- c) Home Office Overhead - Home office overhead is generally referred to as "General and Administrative" (G&A) costs, and these costs include those activities necessary for the overall business of the contractor. They would include the salaries of the company's executives, legal counsel, corporate liability insurance, accounting, depreciation, proposal/bidding costs, bad debts, etc. These costs are usually fixed costs, not varying with the volume of business, and continuing to be incurred with the passage of time. These costs cannot be assigned to any specific project. They are not of the type that can be reduced, or mitigated, during periods of project delays associated with work stoppages, change orders, etc. These costs are allowable and

⁴⁰ - Laburnum Contrs. Corp. v. U.S., 325 F.2d 451 (Ct. Cl. 1963).

recoverable by the Contractor as part of its cost proposal for an equitable adjustment arising out of delays (assuming the delays are compensable). The method of computing the recovery is discussed below.

Federal cost principles - Since virtually all construction change order proposals/claims involve the submission of cost data/estimates by the contractor, the Federal cost principles contained in FAR Part 31 would apply to the determination of an *allowable cost for the purpose of negotiating these change order proposals or claims*.⁴¹ These cost principles stipulate that certain costs, usually included in home office overhead costs (G&A) are unallowable, including entertainment costs, contributions, interest, and bad debts.⁴² Thus, while the contractor may have based its original sealed bid price on the company's full home office overhead rate, it will not be able to base its change order proposals or claims on this full rate--the rate must be adjusted to remove unallowable costs because the proposal is being negotiated on the basis of cost data and not sealed bidding as was the original contract.⁴³ In order to remove these costs, the Contracting Officer may wish to obtain an advisory audit of the indirect rate cost pools prior to negotiations, or simply ask the Contractor to submit overhead information identifying the unallowable portion of the rate and accept the Contractor's submission as being factually accurate without an audit. The dollar value of the negotiations, (as well as the future potential for changes) may be the determining factor in deciding whether to audit the rates or not.

Extended performance - The contractor's performance time may be extended by owner-caused disruptions of work, suspensions or change orders. Some of these actions may have a negligible effect on the contractor's direct costs, and thus entitle the contractor to only a small amount of markup on the direct costs for home office overhead. This type of situation may leave the contractor with a significant under recovery of its home office overhead costs. The courts have recognized that the nature of construction projects is such that contractors may be entitled to recovery of extended home office expenses when their contracts are delayed, and this recovery is beyond the usual percentage markup on the direct costs. Where actual overhead cannot be demonstrated or agreed upon, the *Eichleay formula* has been widely used as a method of calculation.⁴⁴ This formula, however, should be used with caution, as it can overstate actual contractor's overhead. The use of the formula varies from State to State and you should consult with your legal counsel for guidance in the use of this formula.

⁴¹ - CFR § 18.22 (b).

⁴² - FAR 31.105 and FAR 31.2.

⁴³ - FTA Circular 4220.1E paragraph 10.d.

⁴⁴ - This method is named after the landmark 1960 decision in *Eichleay Corp.*, ASBCA 5183, 60-2 BCA § 2688, *aff'd.*, 61-1 BCA § 2894.

In the Eichleay case, the Government had argued for a percentage computation which applied the contractor's normal home office overhead rate to the excess direct costs incurred during the delay period. The Government argued that there was no increase in the overhead rate during the delay. But the Board found that the Government's method was totally inadequate because (1) the delay added very little direct costs to the contract price; thus there was very little for the contractor to recover for home office overhead using a recovery method of a percentage of direct costs for overhead, and (2) the contractor's home office overhead costs continued throughout the delay period and could not be reduced (the costs were fixed, not variable). The facts were that the delays and suspensions occurred through an extended series of interruptions, and it would not have been prudent for the contractor to lay off its Home Office personnel or to take on other new business commitments during this delay period. *The Eichleay formula is proper, then, if the contractor can demonstrate that it was not "prudent or practical" to reduce its home office staff or to seek new business commitments during the period of the disruption.*⁴⁵ The Eichleay formula is accepted in Federal and State courts, boards of contract appeals and by arbitrators as a fair and reasonable method for compensating construction contractors for extended home office expenses resulting from owner-caused, compensable performance delays.

The Eichleay formula - The formula consists of three calculations:⁴⁶

1. $\frac{\text{Contract Billings During Performance}}{\text{Total Billings During Performance}} \times \text{Total Corporate Overhead During Performance} = \text{Corporate Overhead Allocable to Contract}$
2. $\frac{\text{Contract Allocable Corporate Overhead}}{\text{Total Calendar Days of Contract Performance}} = \text{Contract Corporate Overhead Daily Cost}$
3. $\text{Compensable Delay Days} \times \text{Corporate Overhead Daily Cost} = \text{Additional Corporate Overhead Expense During Contract Delay}$

⁴⁵ - Capital Elec. Co. v. U.S., 729 F.2d 743 (Fed. Cir. 1984).

⁴⁶ - The formula as stated in *Construction Contracting*, The George Washington University, 1991.

The methodology outlined above consists of taking the total home office overhead costs for the contract performance period and multiplying this total cost by the ratio of contract billings to total company billings; this calculation produces the amount of home office overhead dollars allocable to the contract. That amount is then divided by the number of days of contract performance; the result is the daily home office overhead rate in dollars per day allocable to the contract. That rate is then multiplied by the number of days of delay. The final result is the dollar amount of recovery for home office overhead costs.

- d) **Profit** - Profit is allowed as part of any owner action which entitles the contractor to an "equitable adjustment" under the terms of the contract. The profit would be that which is reasonable and customary for the type of work being performed. The contract may include a recoverable profit rate on change order work, but it is suggested that the rate be stated as a maximum percentage, negotiable downward only. The reason for this approach is to avoid a cost-plus-percentage-of cost methodology, which is prohibited.⁴⁷ In this way the grantee can negotiate a lower rate of profit on changes where the nature of the work and the risks might warrant a lower rate of profit than for the basic contract.

9.2.3.4 Variations in Estimated Quantities

Many construction contracts contain unit prices and estimated quantities of the various pay items. This procedure is used when the quantity of work cannot be estimated with sufficient accuracy so as to permit the work to be priced on a lump-sum (total price) basis. When it is necessary to use unit prices with estimated quantities, owners frequently include a clause requiring adjustment of the unit prices only when the actual quantities vary significantly from the estimates. For example, both the Federal clause and the Model Procurement Code clauses require that actual quantities must vary by more than 15% (up or down) before an adjustment will be made in the unit prices.⁴⁸ The adjustment can be at the request of either party.

Relationship to Differing Site Conditions clause - The *Variation In Quantity* clause will not govern the Contractor's entitlement to an equitable adjustment when the Contractor encounters conditions of the type described in the *Differing Site Conditions* clause. In such situations, where the Contractor encounters materially differing physical conditions not anticipated by either party, the *Differing Site Conditions* clause will take precedence and the Contractor will be entitled to an equitable price adjustment even if the final quantities vary by less than the % stated in the *Variation In Quantity* clause.⁴⁹ In one case the Board of Contract Appeals found a

⁴⁷ - FTA Circular 4220.1E paragraph 10.e.

⁴⁸ - FAR 52.211-18. MPC R5-401.04.

⁴⁹ - Brezina Constr., Inc., ENGBCA 3215, 75-1 BCA 10,989.

differing site condition when the Contractor encountered an unforeseen rock ledge in a river being dredged. The contract contained a pay item for dredging loose rock, and the removal of the rock ledge did not cause the Contractor to exceed the estimated quantities of rock actually removed. However, the Board ruled that the methods required to remove the rock ledge were not those normally used for loose rock, and thus the Contractor was entitled to a price adjustment under the *Differing Site Conditions* clause even though the total quantity of rock removed was not in excess of the estimated quantity in the contract.

Unit price adjustments - Both the Federal clause and the MPC clause call for a unit price adjustment when the Contractor's costs increase or decrease *due solely to the variation* above 115% or below 85% of the estimated quantity. The phrase "due solely to variation" means that the amount of the equitable adjustment is determined solely from the difference in costs which is due to the larger or smaller quantity, rather than from a complete repricing of the work based on actual incurred costs for the excess quantity. Furthermore, the party demanding the adjustment has the burden of proving that costs have varied *because of a difference in quantity*.⁵⁰

The typical *Variation In Quantity* clause entitles the Contractor to a price adjustment for under-runs as well as over-runs in quantities. This presumes the Contractor can demonstrate that its unit costs have risen because of the under-runs. Typically the Contractor's fixed costs per unit will be higher because of fewer units over which to amortize the fixed costs. In the case of over-runs to the estimated quantity, *the repricing would apply to only those quantities falling outside the range specified*. In the case of under-runs, the repricing would apply to the entire actual quantity produced/delivered.

Payment on basis of actual costs - Some transit agencies have adopted contract provisions paying contractors' *actual costs*, on a "force account" basis, for quantities outside the range specified in the estimated quantities clause. In such cases the methodology is different than that described above where the contractor's starting point for establishing an equitable price adjustment is the unit price in the original contract, adjusted for cost increases or decreases due solely to the variation in quantities. In those cases where the price adjustment is to be based on actual costs for the increased/decreased quantities, the contract terms may describe in detail the methodology for determining payments, including the establishment of ceiling rates to cover such costs as home office overhead, field office overhead, equipment rental, etc. Where ceiling rates are used, they are subject to a final audit, and may be adjusted downward after audit to reflect the contractor's actual costs for the various individual cost elements (e.g., home office overhead). The rates are not fixed, predetermined percentages applied to actual costs of labor, materials, etc.--such an arrangement would be an impermissible cost-plus-percentage-of-construction-cost method which is prohibited by FTA Circular 4220.1E 10e.⁵¹

⁵⁰ - Victory Constr. Co. v. U.S., 510 F.2d 1379 (Ct. Cl. 1975).

⁵¹ - Bay Area Rapid Transit District (BART), *General Conditions For Construction Contracts*, Articles GC4.5 *Increased or Decreased Quantities*, and GC9.3 *Force Account*.

9.2.3.5 Delays

There are many events which can occur to delay a contractor's performance. Delays can be of three generic types:

- (1) Those where the contractor bears the risk of both time and cost--these are delays within its control. These delays are *non-excusable*.
- (2) Those for which the owner is responsible for both time and cost impacts--these are delays for which the owner agrees to be responsible or which are caused by it. These are *compensable* delays.
- (3) Those for which neither party is responsible to the other--these are delays, such as *concurrent* delays, where both parties have caused delays which have an equal impact on completion, and it is impossible to apportion or separate the delays. In such cases, the contractor may not recover its increased costs and the owner may not enforce liquidated damages.

The following provides typical examples of these types of delays. However, there are many variations used in contracts and grantees must make their own determination as to how the risks associated with delays are allocated between themselves and their contractors.

Excusable delays - The primary purpose of an *excusable delay* provision is to protect the contractor from sanctions for late performance (e.g., default termination, liquidated damages, and actual delay damages). *Excusable* delays may not be *compensable*. Whether a delay is considered *excusable* depends on the language of the particular clause in the contract. The Federal clause for construction contracts names a number of events which can give rise to an *excusable delay*, but there are *three elements which are critical in determining whether an excusable delay has occurred*.⁵² The three elements are:

- (1) The delay must arise from *unforeseeable causes*. If circumstances which are known when the contract is entered into make certain delays foreseeable, then courts have held the contractor responsible and refused to grant relief.⁵³
- (2) The event must be *beyond the control of the contractor*. If a contractor cannot prevent an event from occurring, that event is beyond the contractor's control. Also, the standard applied is one of reasonable economic practice. For example, where

⁵² - FAR 52.249-10, *Default (Fixed-Price Construction)*.

⁵³ - *Dicon, Inc. v. Marben Corp.*, 618 F.2d 40 (8th Cir. 1980).

there has been unusually severe weather, the contractor is not obligated to institute a two-shift operation to overcome the delays caused by the weather.⁵⁴

- (3) The delay must be *without the fault or negligence of the contractor*. Fault or negligence deals with either acts or omissions of the contractor that cause delays. A contractor was not granted relief when its subcontractor failed to perform because the contractor was negligent for failing to assure itself of the subcontractor's ability to perform.⁵⁵

If the excusable delay provision lists a type of event relieving the contractor from responsibility, then, under the Federal clause, the three criteria discussed above are applied to the event to determine the issue of excusability. It should be noted, however, that private contracts may or may not contain the same language as the Federal clause, and thus the proper interpretation of the clause should be sought from the grantee's in-house legal counsel. The types of events usually included in these provisions would include:

- Strikes - To obtain an excusable delay for a strike *under the Federal clause*, a contractor must prove that it acted reasonably and did not wrongfully precipitate or prolong the strike, and it must take steps to avoid its effect. In other words, the three-fold criteria of being unforeseeable, beyond the contractor's control, and without the fault or negligence of the contractor, must be met. *In private contracts* which do not contain this language, however, a court may well excuse a delay even where the strike is precipitated by the contractor's actions, such as reducing its workers' wages.⁵⁶
- Weather - Most contracts will contain excusable delay provisions concerning adverse weather. Generally, adverse weather is *abnormal in comparison to the previous weather patterns at the same location for the same time of year*. Some grantee construction contracts contain provisions noting the anticipated non-work weather days for each month of the year, and contractors are advised to bid with this information and to plan their schedules accordingly.⁵⁷ The usual method of proving that weather is unusually severe is to obtain comparative data from the U.S. weather bureau for past periods in the area with those recorded during the period of performance.

⁵⁴ - Southern Flooring & Insulation Co., GSBCA 1360, 1964 BCA 4480.

⁵⁵ - Kaufman DeDell Printing, Inc., ASBCA 19268, 75-1 BCA 11,042.

⁵⁶ - Panzieri-Hogan Co. v. Bender, 143 N.E. 739 (N.Y. 1923).

⁵⁷ - BART, Clause GC.8.5.1.4 -- *Anticipated Non-Work Weather Days*.

- Subcontractor and supplier delays - Where the delay is caused by a subcontractor or supplier, and the excusable delay clauses mention this as an excusable cause, there is usually the added requirement that the subcontractor's or supplier's delay be excusable based on the same three-fold criteria as discussed above in connection with other causes of delay; i.e., it must have been due to circumstances unforeseen by the subcontractor, beyond the subcontractor's control, and without the subcontractor's fault or negligence.
- Owner conduct - To be excused for owner conduct, contractors must show that the contractual acts or omissions of the owner were wrongful (e.g., an improper failure to pay for services performed, or improper interference with the work of the contractor). But where delays are due to owner acts properly taken, there is no basis for an excusable delay (e.g., where owner rightly insists on compliance with specifications, or properly rejects subcontractors who do not meet qualification/ experience requirements). Of course when the owner issues Change Orders (which are not wrongful acts), the contractor is entitled to both a price and schedule adjustment in accordance with the terms of the Changes clause.

Compensable delays - These are delays for which the *contractor is entitled to compensation*, not merely an extension of time, as with many of the *excusable delays*. Entitlement to compensation may be expressly stated in a specific contract clause, but if not, *there is an implied duty of each party not to hinder, delay or make more expensive the performance of the other party*. Thus, even in the absence of a specific contract clause granting the contractor compensation for owner-caused delays, many courts find an implied owner duty not to hinder or delay, and they will grant compensation to contractors for such delays.⁵⁸ This implied duty has been used as justification for compensation in a wide variety of circumstances.

Compensable delays may arise because of *express orders of the owner* (e.g., suspensions of work for owner's convenience, written Change Orders, etc.), or because of so-called *constructive changes*; i.e., some act of the owner or failure to act which causes a compensable suspension of work (e.g., delay in the availability of the site, delay in issuing approvals where prior approval is required before starting work, delays in the inspection process, or owner's interference with the contractor's work).

In order to be compensated for delays, *a contractor must demonstrate that the delay is unreasonable in duration*. It is important to determine if the delay is the result of the owner's fault or whether it results from an action taken by the owner pursuant to a contractual right. If the delay results from an owner's fault, the courts have generally held that the entire period of the delay is unreasonable and therefore compensable. If, on the other hand, the delay arises out of an

⁵⁸ - Peter Kiewit Sons Co. v. Summit Constr. Co., 422 F2d 242 (8th Cir. 1969).

action taken pursuant to an owner's contractual right, the contractor will be compensated only for the unreasonable portion of the delay.⁵⁹

Delays where the total delay period has been found unreasonable include:

- Delay in issuing notice to proceed beyond date needed by contractor to perform work efficiently.
- Delays because of conflicting or defective specifications.
- Delays in obtaining city authorizations which could only be obtained by the owner.

Delays which have been found to be reasonable include:

- Delays in awarding the contract arising out of compliance with bid protest procedures.
- Delays in issuing changes which were not attributable to defective specifications.

Concurrent delays - When both parties contribute to a delay, the issue arises as to how to resolve the question of responsibility for the delay. The courts have resolved this issue by assessing the losses attributable to each party's delay and apportioning the damages accordingly.⁶⁰ The case law in this area focuses on apportioning the delay to its appropriate category of owner-caused, contractor-caused, and caused by neither--"excusable" per the contract terms. What this means is that if one party contributed in part to the delay, it will not be barred from recovering damages from the other party (e.g., an owner who is *partly responsible* for the delay will not be precluded from recovering liquidated damages).⁶¹ Where it is impossible to allocate or separate the delays, or where the delays are truly concurrent (where each party has had an equal impact on completion, the following rules would apply:

- Where contractor-caused delay is concurrent with owner-caused delay, the contractor may not recover its increased costs resulting from the delay.
- Where *noncompensable* delays are concurrent with owner-caused delays, a contractor may not recover its increased costs resulting from the delay.
- Where the owner has contributed to the project delay, and such contribution cannot be separated from other causes of delay, liquidated damages cannot be enforced by the owner.

⁵⁹ - Davho Co., VACAB 1005, 72-2 BCA 9683 at 45,214.

⁶⁰ - U.S. ex. Rel. Heller Elec. Co. v. William F. Klingensmith, Inc., 670 F2d 1227, 1231 (D.C. Cir. 1982).

⁶¹ - Aetna Casualty & Sur. Co. v. Butte-Meade Sanitary Water Dist., 500 F. Supp. 193, 197 (D.S.D. 1980).

9.2.3.6 Acceleration

Acceleration is the speeding up of the rate of performance in order to complete the contract earlier than would be the case if the contractor pursued the effort in a normal manner. There are two situations where contractors are entitled to compensation for acceleration costs.

Owner-caused delay - When an owner causes a delay which would entitle a contractor to recover its increased costs (see *compensable delays* in section 9.2.3.5), the contractor may attempt to mitigate the costs of the delay by voluntarily accelerating its efforts. In this case the contractor is entitled to recover the costs of accelerating the effort and these increased costs are actually recoverable as part of the delay costs because they were incurred in mitigation of those delay costs.⁶²

Owner-directed acceleration - When an owner orders the contractor to complete the work earlier than the contract requires, the contractor is entitled to recover the costs of acceleration. The owner may expressly order the contractor to accelerate performance, thus creating a compensable acceleration, but in the majority of cases the acceleration is *constructive* rather than expressed; i.e., the owner orders the contractor to meet the contract completion date even though there has been an *excusable delay* which would entitle the contractor to an extension in the completion date. (See *excusable delays* in section 9.2.3.5). The effect of this order by the owner is to require a rate of performance which is faster than the contract requires, and this is equivalent to an express order to accelerate.⁶³

Elements required for constructive acceleration: - In order to recover for constructive acceleration, it is generally held that the contractor must demonstrate three elements:

- (1) the delays which occasioned the order to accelerate were excusable.
- (2) the contractor was ordered to accelerate.
- (3) the contractor in fact accelerated performance and incurred extra costs.⁶⁴

Order to accelerate - An order to accelerate does not have to be a specific command. If the owner "requests" the contractor to accelerate, it has the same effect as an "order." Further, it makes no difference whether the contractor complies willingly or unwillingly. If the initiative comes from the owner and the work is done in a manner different than the contract requires, then the contractor will be entitled to compensation. Other circumstances giving rise to constructive

⁶² - Canon Constr. Corp., ASBCA 16142, 72-1 BCA 8622.

⁶³ - Contracting & Material Co. v. City of Chicago, 314 N.E. 2d 598 (Ill App. Ct. 1974).

⁶⁴ - Norair Eng'g. Corp v. U.S., 666 F. 2d 546 (Ct. Cl. 1981).

acceleration would be: (a) a wrongful threat to terminate for default where the delays were excusable,⁶⁵ and (b) a threat to assess liquidated damages where delays were excusable.⁶⁶

Acceleration orders where both excusable and non-excusable delays exist - The Federal cases have held that when the owner directs the contractor to accelerate in order to recover the non-excusable delay, the acceleration costs are not recoverable.⁶⁷ It has also been held that where both excusable and non-excusable delays exist, and the contractor accelerates performance pursuant to an order of the owner, the acceleration costs are not compensable when the time recovered is less than the amount of the non-excusable delay.⁶⁸

Recovery of acceleration costs not dependent on recovery of lost time - When the owner orders completion ahead of schedule, and the contractor uses its "best efforts" to accelerate completion of the project but fails to recover the lost time, the contractor is permitted to recover the increased costs associated with its efforts to accelerate.⁶⁹

9.3 IMPROVING VENDOR DELIVERY PERFORMANCE

Late deliveries from vendors can be, and often are, a serious problem for many agencies, especially those that are awarding and administering many thousands of purchases annually. New York City Transit (NYCT) is an agency that has faced this problem with respect to its maintenance materials and developed some innovative solutions to deal with it. This agency has faced all of the normal difficulties in dealing with vendors, including late deliveries, quality and quantity problems as well as difficulties in motivating its suppliers to grasp the significance of improved performance. The following summarizes some of the methods NYCT has used to address vendor performance problems.

Vendor Performance Module – The first step in addressing poor vendor delivery performance was to develop a computer software program or module that would accurately gather and report different measurements of vendor performance.

This permits NYCT's procurement and receiving functions to be electronically linked, thereby enabling receiving personnel to enter the data summarizing the details of each inventory receipt transaction. For example, the data recorded includes the actual date of delivery in comparison to

⁶⁵ - William Lagnion, ENGBCA 3778, 78-2 BCA 13,260. Lewis Constr. Co., ASBCA 5509, 60-2 BCA 2732.

⁶⁶ - Pathman Constr. Co., ASBCA 14285, 71-1 BCA 8905.

⁶⁷ - Electrical Enters., Inc., IBCA 971-8-72, 74-1 BCA 10,528.

⁶⁸ - Pan-Pacific Corp., ENGBCA 2479, 65-2 BCA 4984.

⁶⁹ - Varo, Inc., ASBCA 15000, 72-2 BCA 9717.

the date promised by the vendor, purchase order quantity vs. actual quantity received and quality assurance rejections. The module accumulates this data on a vendor specific basis and provides performance information. Using this performance information, NYCT has implemented several programs to improve on-time delivery performance.

“100 Worst” Program – Utilizing the vendor performance data, NYCT can identify the “vital few” vendors who are generally responsible for the greatest number of late deliveries and are having the most significant impact on NYCT’s ability to support maintenance and production efforts. Presently NYCT has directed its focus on the 100 firms having the highest number of late deliveries through open, non-adversarial meetings between agency procurement staff and the chief executives of the companies in question. Specific emphasis is placed upon the expansion of the vendor’s understanding of the significance of late deliveries. Individualized action plans are developed with clearly defined remedial steps and corresponding milestone dates. For the most part this approach has been successful; however, in those rare instances where a vendor is completely unable to improve, determinations of non-responsibility, suspensions, defaults and debarments are invoked.

Top 100 Suppliers – This program looks at the 100 best suppliers. NYCT holds an annual vendor conference and invites senior management officials from these suppliers. Awards are presented to the very best companies for excellent on-time performance, with special emphasis on companies showing marked improvement. These awards are perceived as prestigious within the industry and are anticipated to have an extremely positive effect on a vendor’s ability to attract future business with other transit properties. Goals and strategies are discussed for continued improvement and the attendees are given a complete understanding of the major initiatives that NYCT has embarked upon which will require the support of the vendor community through timely performance.

“STATUS” Program – *System To Automatically Track Untimely Shipments*

The STATUS program is a standard method of late delivery notification to any vendor. At set time periods, letters detailing a missed delivery date are mailed to the vendor. The system officially notifies each vendor’s sales representative and chief officer of late deliveries, advising them of potential action and affording the company an opportunity to respond.

Program Results - The programs adopted by NYCT (Vendor Performance Module, “100 Worst” Program, “STATUS” Program, and “Top 100 Suppliers”) have proven to be highly successful in improving vendor performance.

Another program that has proven successful at MARTA involves linking employee performance to on time vendor deliveries.

9.4 APPROVAL OF SUBCONTRACTORS

REQUIREMENT

FTA Circular 4220.1E paragraph 16 requires grantees to evaluate Federal statutory and regulatory requirements for relevance and applicability to a particular procurement.

Appendix A.1 – *Federally Required and Other Model Contract Clauses*, and Chapter 8 – *Contract Clauses*, contain a discussion of many contract clause requirements, including the applicability to subcontracts.

49 CFR Part 26 sets forth the requirements of the Federal Department of Transportation concerning Disadvantaged Business Enterprise (DBE) participation in FTA programs. A discussion of these requirements may be found in Chapter 7 of this Manual.

DISCUSSION

The management of subcontracts usually involves three areas:

- (1) **Assurance that the prime contractor has included the required “flow-down” provisions (clauses) from the prime contract in the subcontract. A discussion of the requirements related to the flow-down of Federal contract clauses may be found in Chapter 8 – *Contract Clauses*, and Appendix A.1 – *Federally Required and Other Model Contract Clauses*.**
- (2) **The prime contractor’s compliance with the Disadvantaged Business Enterprise (DBE) requirements in its prime contract. Guidance related to the DOT requirements concerning DBE matters may be found in Chapter 7 - *Disadvantaged Business Enterprise*.**
- (3) **Assurance that the prime contractor has selected its critical subcontractors in a prudent fashion, so as to protect the grantee’s program interests.**

The purpose of this section relates to the third objective above – it is to furnish guidance concerning those circumstances when grantees may wish to require their prime contractors to submit certain subcontracts for the grantee’s consent prior to award of the subcontract by the prime. ⁷⁰

When the prime contract is CPFF or T&M– Under a cost-plus-fixed-fee contract (CFPP) and a time-and-materials (T&M) contract, the grantee bears the burden of allowable costs

⁷⁰ - The grantee may find it helpful to review the Federal policies and procedures concerning subcontracting in the FAR Part 44. Grantees are not required to follow these Federal procedures.

incurred by the prime contractor, including amounts spent for supplies and services on purchase orders or subcontracts. It behooves the grantee, therefore, to exercise diligence in the management and administration of these types of prime contracts with respect to the primes' selection of its major subcontractors or suppliers. If the cost incurred by the prime is greater than necessary (for example, because of inadequate competition or a poorly negotiated subcontract), it is the grantee that will bear the higher than necessary costs. If the selected subcontractor performs poorly, it will be the grantee that will bear the cost of correcting the problems or be put in a position of having to accept a product that is substandard.

When the subcontract involves a critical component or subsystem – This situation is more likely to arise when the contract involves the procurement of a major system or involves new technology. Here the issue is not so much the cost risk that accrues to the grantee under every CPFF or T&M type of contract, but the risk of failure of the system being procured due to problems with subcontracted components or subsystems that are critical to the system's successful performance. For example, on a large contract for rehabilitating a subway station, a prime contractor with civil engineering experience may have to subcontract the electrical system work. You may very well require the prime to submit its proposed subcontractor for electrical work for your approval, and you will want to do a "responsibility" type of review of that particular subcontractor. If you have evidence of poor prior work by that subcontractor, or evidence of marginal financial resources, you may require the prime to select a different company with a better track record of performance or a stronger balance sheet.

When the subcontract exceeds a certain dollar threshold – Grantees may require their primes to submit all subcontracts over a certain stated value for consent. New York City Transit, for example, requires its prior approval of all subcontractors whose subcontracts will exceed \$1,000,000 or 10% of the total contract price. For Federal contracts, the threshold for subcontract consent is 5% of the prime contract value when the prime contract is a CPFF or T&M type of contract.⁷¹

Best Practices

Determining Subcontractor Responsibility – Sealed Bids - You may wish to consider a standard provision in your solicitations that would require the bidders to submit certain subcontractor information for your review prior to contract award. This information would enable you to make a determination that a proposed subcontractor or supplier was technically and financially qualified to perform the work. This determination would be part of your "responsibility" determination for awarding the contract. New York City Transit uses a standard provision in its Invitation for Bids (IFB's) entitled "Bidder's Qualifications/Responsibility."

⁷¹ - FAR 44.201-1.

This clause requires the bidder to demonstrate to the satisfaction of NYCT that it has the integrity, skill, experience, facilities and financial resources necessary to perform the contract. The clause covers major subcontractors as well as the prime contractor. The pertinent part of this clause concerning subcontractors reads as follows:

- (h) *Except to the extent set forth in subparagraph (i) below, Authority approval of all Subcontractors and Suppliers is required. In order to assist the Authority in its evaluation of Bidder's qualifications, the Bidder shall supply to the Procurement Representative within three (3) working days after the opening of bids, or within three working days after notification, in the case of a subsequently identified apparent low bidder, a detailed list of: (i) proposed Subcontractors supplying labor or labor and materials, with a value exceeding the lesser of \$1,000,000 or ten percent (10%) of the Total Contract Price as bid by the apparent low Bidder; and (ii) Proposed Subcontractors and Suppliers of the following equipment, materials or labor:*

(See Information for Bidders Data Sheet)

Bidder's submission is to also include the completed form titled "Statement of Qualification of Subcontractor," a copy of which is available from the Procurement Representative.⁷² These requirements are in addition to, and not in lieu of, submission requirements pertaining to subcontractor's proposal to meet DBE or MBE/WBE or affirmative action requirements.

The Bidder shall state in writing to the Authority the name and place of business of each proposed Subcontractor or Supplier, the portion of the work which such Subcontractor is to do or the equipment/materials which such supplier is to furnish and such other information as the Authority may reasonably require tending to establish that the proposed Subcontractor or Supplier has the necessary skill, facilities, integrity, experience and financial resources to perform the work or supply the equipment in a satisfactory manner and in accordance with the Contract. To be considered skilled and experienced, the proposed Subcontractor or Supplier must show that he has satisfactorily performed work, or supplied equipment, of the same general type that he is proposing to perform for the Bidder under this Contract. The Authority may require such proposed Subcontractor or Supplier to submit proof of financial or other qualification to do the Work. In addition to submitting for approval the above-mentioned categories of Subcontractors and Suppliers, Bidder may submit any other proposed Subcontractor or Supplier for approval prior to contract award.

⁷² - A copy of this Qualification Statement is included in this Manual as Appendix B. 17 – *Statement of Qualification of Subcontractor*.

The Authority will notify the Bidder within a reasonable time whether use of the proposed Subcontractor or Supplier has been approved. Where use of a proposed Subcontractor or Supplier has not been approved, the Bidder may propose another Subcontractor or Supplier, or propose to perform the work himself.

- (i) *With respect to any Subcontractor(s)/Supplier(s), the successful Bidder will be required to obtain approval of such Subcontract(s)/Supplier(s) in accordance with the provisions of Article 1.08.*

The contract Article No. 1.08 referenced above in the solicitation provision requires the Bidder to use the Subcontractors/Suppliers that were approved by NYCT. The contract clause reads, in part:

ARTICLE 1.08 - SUBCONTRACTS

- (a) *Any Subcontractor or Supplier which required and received pre-award approval in accordance with paragraph 16 of the Information for Bidders, must be utilized by the Contractor for the portion of the Work for which they were approved. The Authority will generally not entertain any post-award substitutes of any such Subcontractor or Supplier in the absence of compelling circumstances to do so.*⁷³

Several points can be noted concerning the above solicitation provision and contract clause:

- a. Every subcontract greater than 10% of the bid price will automatically be captured for review.
- b. The provision is tailored on a case-by-case basis to capture any subcontract deemed important or critical by the grantee regardless of dollar value. You would simply insert the equipment, materials or labor in your “Bidders Data Sheet” (or wherever you wish to note the items) so as to require your review and approval of those subcontractors.
- c. The Bidder will be required by the contract Article 1.08 – *Subcontracts*, to use the Subcontractors/Suppliers that were proposed and approved unless there are “compelling circumstances” that preclude the Bidder from doing so.

Consenting to Subcontracts When the Prime Contract is Cost Plus Fixed Fee (CPFF) or Time & Materials (T&M) - For these types of contracts, grantees may wish to require the prime contractor to submit the proposed subcontract for the grantee’s consent prior to award by the prime, especially if the subcontract is significant in dollar terms, involves a critical component,

⁷³ For a complete contract clause and further information dealing with Subcontracts, contact Stan Grill of NYCT at (718) 694-4350.

or is itself a CPFF or T&M subcontract. If the grantee determines that any subcontracts should be submitted for consent, the grantee will want to identify the types of information that the prime should submit with its request for consent. The type of information that will usually be relevant as part of an advance notification for consent package would consist of:

1. A description of the supplies or services to be subcontracted. The best description would be the actual subcontract specifications and/or statement of work.
2. Identification of the type of subcontract to be used. The actual subcontract document itself would be best since it would give you all the terms and conditions, which you can then review to ensure that all required flow-down clauses are incorporated in the subcontract. The BPPM Appendix A.1 contains the required Federal clauses and identifies those that have flow-down requirements.
3. An explanation of how and why the proposed subcontractor was selected, including an identification of the competitive proposals obtained, and their relative strengths and weaknesses.
4. The subcontractor's cost or price proposal, together with the prime contractor's cost or price analysis of the subcontractor's proposal.
5. Evidence from a competent auditor that the subcontractor's accounting system is adequate for cost-type subcontracts (if the subcontract is cost-type) and that the proposed labor and indirect expense rates are reasonable in light of recent actual rates incurred and the best available business projections for the company.
6. The Prime contractor's explanation of how the subcontract price was determined.
7. The Prime contractor's assessment of the subcontractor's "responsibility," including the subcontractor's performance record on prior jobs of a similar magnitude.

Degree of Work that is Subcontracted - Grantees may consider requiring the prime contractor to perform certain tasks on a project or a minimum percentage of the work, to insure that the prime contractor maintains a certain degree of control over the project. For instance, where a job is primarily civil/structural work, bidders may be allowed to subcontract associated electrical work, but may be required to perform the civil/structural work with their own forces. In any event, where a significant amount of the work is subcontracted, the agency may wish to take a more active role in approving subcontractors.⁷⁴

⁷⁴ - Some states or jurisdictions have established minimum requirements.

Chapter 10

10 – Closeout

10.1 Closeout Procedures (7/99)

10.2 Audits (7/99)

10.3 Record Retention (4/05)

10.1 CLOSEOUT PROCEDURES

REQUIREMENT

49 CFR Part 18.50, *Closeout*, addresses the requirements that grantees must adhere to in the closeout of their grants. In order to comply with these requirements, grantees will have to obtain the required information, reports, final invoices, and other documentation as appropriate from their third party contractors as part of the contract closeout process. The closeout information required by FTA from grantees pertains to the following:

1. Final performance or progress report.
2. Financial Status Report.
3. Final request for payment.
4. Invention disclosure (if applicable).
5. Federally-owned property report (does not include property obtained with grant funds).

DISCUSSION

A completed contract is one that is both physically and administratively complete. A contract is *physically complete* only after all deliverable items and services called for under the contract have been delivered and accepted by the grantee. These deliverable items include such things as reports, spare parts, warranty documents, and proof of insurance (where required by the contract terms). These deliverable items may or may not have been priced as discrete pay items in the contract, but they are required deliverables, and the contract is not physically complete until all deliverables are made. A contract is *administratively complete* when all payments have been made and all administrative actions accomplished. The steps that must be completed to close out a contract will depend upon the type and/or nature of the contract.

Routine commodity procurements – The closeout of routine purchase orders and contracts for commodities and other commercial products is usually a straightforward and uncomplicated process. The procurement person responsible for closeout will need to ensure that his end item user has inspected and accepted the deliverable items as being in

conformance with the purchase order/contract specifications. An inspection/acceptance form should be in the file attesting to the contractor's delivery of all contract end items, including any descriptive literature or warranty documentation. There must also be documentation attesting to final payment by the accounts payable department.

Non-routine contracts for services, construction, rolling stock, etc. – Contracts for personal services, complex equipment, construction, and other one-of-kind items will require a number of steps to effect an administrative closeout. Major elements of the closeout process, and related documentation, might include:

- a) Resolution of all contract changes, claims, and final quantities delivered.
- b) Determination/recovery of liquidated damages.
- c) Review of the insurance claim file by counsel/insurance specialist to determine if funds need to be withheld from final payment to cover unsettled claims against the contractor.
- d) Settlement of all subcontracts by prime contractor.
- e) Performance of all inspections (and acceptance tests if any) by the grantee's project management office, with appropriate documentation.
- f) Conduct of a cost audit for cost-reimbursement contracts and resolve questioned costs, if any.
- g) Generation of a Contractor Performance Report. See *Best Practice* below.
- h) The submittal of all required documentation by the Contractor, including such items as:
 - Final reports
 - Final payroll records and wage rate certifications
 - Spare parts list
 - Manufacturer's Warranties and Guarantees
 - Final corrected shop drawings
 - Operation and maintenance manuals

- **Catalogues and brochures**
 - **Invention disclosure (if applicable)**
 - **Federally-owned property report (if there was Government-furnished property)**
 - **Resolution of final quantities (construction contracts)**
 - **Final invoice**
 - **Consent of Surety to release final payment to Contractor**
 - **Contractor's Affidavit of Release of Liens**
 - **Contractor's General Release (releasing the grantee from any further liabilities/claims under the contract)**
 - **Maintenance Bond (if required)**
- i) **Conduct a Post-delivery Audit for rolling stock contracts as required by 49 CFR Part 663 – Pre-award and Post delivery Audits of Rolling Stock Purchases.**

Federal closeout procedures – Should the grantee wish to review the contract closeout procedures used by the Federal Government for its contracts, they may be found in FAR Part 4.804, *Closeout of contract files*. FAR Part 42.15, *Contractor Performance Information*, discusses the preparation of *Contractor Performance Reports*. These procedures are not binding on grantees, and are included here for information purposes only.

Best Practice

Establishing That a Contract Is Completed – It is generally the responsibility of the Project Manager (PM) to establish that the work under a contract has been completed and the contract is ready for closeout. When the PM determines that the work is complete, the PM should prepare a checklist showing all the contract deliverables and submittals, and indicating on the checklist that all submittals and deliverables have been reviewed, inspected and accepted. The PM should notify the contract administrator by memorandum that the contract is complete and all required deliverables have been inspected and accepted.

Contract Closeout Checklist – The PM or contract administrator should have a *contract closeout checklist*, listing all the administrative steps required to close out a contract. The checklist is an extremely useful tool for the contract administrator or project manager who is responsible for contract closeout. Given the different requirements for the various contracting situations,

grantees may wish to have different checklists for different types of contracts; e.g., commodities, services, construction, cost-type contracts, etc. An example of a *contract closeout checklist* used by MARTA for construction contracts is shown in Appendix B.14.

Contractor Performance Report – Documentation of a contractor’s performance for future source selection decisions is an option that grantees should consider for certain types of procurements such as professional services, complex equipment, construction, etc. These performance reports can be an important reference point for future source-selection decisions. See BPPM Section 5.1, *Responsibility of Contractor*. If the grantee chooses to document a contractor’s performance, input to the report should be received from the technical office, contracting office, disadvantaged business office (if contract contained DBE requirements) and end users of the product or service (if appropriate). Contractors should be furnished with the report and given an opportunity to submit comments, rebutting statements or additional information. The Contractor’s comments should be retained in the report file. It would be advisable to have a review level above the grantee Procurement Officer to consider disagreements between the parties regarding the evaluation. However, final decision on the content of the report must rest with the grantee. Copies of the final evaluation should be furnished to the Contractor. Grantees should have a time limit on the retention of these reports.¹

Review by legal counsel – For procurements involving services, construction, and larger dollar value equipment purchases, grantees may wish to have their legal counsel review the closeout file to ensure the adequacy of the contractor’s legal documents, including the contractor’s general release, insurance certificates, surety’s release, maintenance bonds, etc.

Proof of insurance coverage – For all contracts requiring the Contractor to maintain insurance for its products or services (e.g., professional liability or product liability insurance), the contract administrator should obtain *proof of insurance* from the Contractor as part of the closeout process. This documentation should be submitted to the grantee’s Insurance Department for approval prior to final payment of the Contractor. The Insurance Department will be required to maintain these documents as “active” files until such time as the insurance requirement ceases under the terms and conditions of the contract; i.e., these insurance terms will continue past (survive) the final contract payment.

Final payment – The contract administrator (CA) must be sure that all administrative steps have been accomplished prior to final payment. Contract administrators should make use of a *contract closeout checklist* to the extent that the Program Manager’s checklist does not cover everything in the closeout process (e.g., the contract administrator may have certain areas of concern not assigned to the Program Manager). The CA must ensure that all required inspections have been performed by the technical program office, and a memorandum has been received from the project manager certifying to the satisfactory completion of the contract, which includes

¹ - The Federal policy is to retain these reports for not more than three years [FAR Part 42.1503(e)].

all required documentation from the Contractor, before they authorize final payment or the release of any funds being retained under the contract. Contract administrators need to pay careful attention to those types of documents that are notoriously problematic, such as warranties. In fact, grantees may wish to consider making these warranty documents a pay item in their contracts when the contract pay items are being established, so that the Contractor will be motivated to deliver the documents in a timely manner, and there will be no dispute as to the proper amount that should be paid for these items.

Contractor's General Release – As part of the contract closeout process, the contract administrator must send the Contractor a closeout letter that includes the Contractor's "general release." This document must be a standard statement prepared by the grantee's legal counsel for use on all of the grantee's contracts. The release will say that for the payment of a sum certain, which is the final contract amount agreed to by both parties, the Contractor releases the grantee from any and all claims of every kind arising directly or indirectly out of the contract. The release may also contain a certification that the contractor has paid its subcontractors and suppliers for all their labor, materials, services, etc. furnished under the contract. The release is to be signed by a corporate official authorized to bind the Contractor. The *general release* is important to obtain prior to final payment because it assures the grantee that there will be no further claims from the Contractor once the final payment has been made. The grantee should have the release reviewed by its legal counsel if the Contractor makes any changes to the grantee's standard release language that was sent to the Contractor for signature. Of course it will be necessary for the grantee and the Contractor to have resolved all open issues of a financial nature prior to the execution of the release (change orders, claims, liquidated damages, etc.), and this resolution of all outstanding claims is an important step in the contract closeout process.

Retainage and the problem of contractors who quit work – Occasionally a construction contractor may "walk away" from a project that is almost complete, refusing to sign a general release and forgoing final payment. This situation may occur when the contractor lacks sufficient financial incentive to complete the contract; e.g., if the "punch list" is large and there is very little money left in retainage, the contractor may profit by refusing to correct the punch list items and leave the retainage with the grantee. Or the contractor may have been awarded another contract which requires the reassignment of his personnel to another job. Whatever the reason, *the grantee should anticipate this possibility by carefully estimating the amount of retainage in such a way that it represents twice the amount of the punch list work and undelivered items (manuals, drawings, spare parts, etc.).* For example, MARTA's procedures (which are spelled out in the contract provisions) call for the retainage of at least 5% of the total contract value as the work progresses (10% if there are problems observed with the work). At the point of final inspection and punch list preparation, the resident engineer estimates the value of the punch list items and the undelivered items such as spares, manuals, warranties, etc., and then MARTA pays out the retainage minus twice the value of all the unfinished work. By establishing the retainage in this way, the contractor is motivated to complete the contract, because the contractor will actually receive twice the amount of money that it takes to finish the work. In other words, the contractor is given a strong incentive to complete the contract. When all else fails, the grantee should definitely involve the surety in the issue of unfinished work

(even if the amount of work is relatively small) because the contractor's relationship with its surety is a vital one for its future business. If the contractor loses the confidence of its surety, it is effectively foreclosing on its ability to bid on future work requiring performance bonds.

Warranty and Guarantee Register – The contract specifications may require that individual warranties or guarantees be furnished for various installed equipment or building systems. For each completed contract requiring warranties, the contract administrator should develop a *Warranty and Guarantee Register*, which is a status form listing:

- each individual item of equipment and system for which a warranty or guarantee is specified (roofing, doors, sealants, etc.);
- the pertinent section in the contract specification;
- the name of the company providing the warranty;
- the expiration date of the warranty; and
- the address of the providing company

An example of a *Warranty and Guarantee Register*, used by MARTA, can be found in Appendix B.13. The *Warranty and Guarantee Register* will enable the grantee to monitor upcoming warranty expirations so that the equipment or building system can be inspected before the expiration date, and corrective actions taken by the Contractor if required.

10.2 AUDITS

REQUIREMENT

FTA's Grant Management Guidelines Circular 5010.1C, dated October 1, 1998, Chapter III-7, *Third Party Contract Audits*, provides guidance to grantees concerning those third party contract audits.

DISCUSSION

FTA's *Grant Management Guidelines* do not establish a contract value/dollar threshold requirement for conducting contract audits. Grantees must use their own discretion as to the nature and extent of third party contract audits. However, the *FTA Guidelines* mention certain types of contracts that usually include provisional overhead (burden) and General Administrative (G&A) rates. These provisional, or interim, rates need to be verified by audit for the applicable contract periods. The types of contracts that typically may be structured as cost-reimbursement contracts requiring final cost audits would include consultant, engineering or service contracts.

Contract audits may also be requested by FTA to verify that grantee payments to the contractor are consistent with the terms of the contract. In addition, audit of a third party contract may be recommended by the firm conducting the grantee's single annual audit.²

Third party contract audits must be conducted by auditors who are independent from the third party contractor. Many grantees assign the contract audit function to their own auditors or financial management personnel. However, some grantees do not have the personnel resources within their own organization to perform this function. There are two sources for audit services that are available to grantees: independent accounting firms and contract auditors from agencies of the Federal Government. Private accounting firms can usually respond more rapidly to the grantee's request for audit, but in some cases the Federal Government maintains a continuing audit function at contractor locations, and these auditors can be used for third party contract audits. In contracting for private firms to provide audit services, grantees should follow standard contracting procedures for third party contracts. Requests for Federal audit assistance should be directed to FTA.

When audits result in questioned costs, and the grantee is thus required to resolve the questioned costs through negotiation with the Contractor, the results of the negotiation should be documented in a *Summary of Negotiations* memorandum which must be placed in the contract file. This memorandum must explain how the final contract costs were arrived at.

The cost of performing an audit of a third party contract can be charged to the grant.

10.3 RECORD RETENTION

REQUIREMENT

1. The FTA Master Agreement MA(12) Section 8, *Reporting, Record Retention, and Access*, contains the following requirements concerning the retention of documents:
 - c. Record Retention. The Recipient agrees to maintain intact and readily accessible all data, documents, reports, records, contracts, and supporting materials relating to the Project as the Federal Government may require during the course of the project and for three years thereafter.
 - d. Access to Records of Recipients and Subrecipients. Upon request, the Recipient agrees to permit and require its Subrecipients to permit the Secretary of Transportation, the Comptroller General of the United States, and, if appropriate,

² - See FTA Master Agreement MA(12), 10-1-05, Section 10, for Single Annual Audit requirements.

the State, or their authorized representatives, to inspect all Project work, materials, payrolls, and other data, and to audit the books, records, and accounts of the Recipient and its Subrecipient pertaining to the Project.

- e. Project Closeout. Project closeout does not alter these reporting and record retention requirements.
2. 49 CFR Part 18.36 (i), *Contract provisions*, requires grantees to incorporate certain provisions in their contracts dealing with access and records retention. Specifically, Part 18.36(i)(11) requires a three-year retention period for all documents after the grantee makes final payment.

DISCUSSION

The FTA Master Agreement (MA) deals with grantee and subgrantee record retention requirements in Section 8. Grantees are “recipients” and subgrantees are “subrecipients.” The MA requires recipients and subrecipients to maintain their records for at least three years following completion of the project. *These rules do not pertain to third-party contractors since the latter are not “recipients” or “subrecipients.”*³

The requirements pertaining to *third-party contractors* are set forth in the Common Grant Rule (49 CFR 18.36). Grantees are required to include a clause in their contracts whereby contractors agree to maintain records for inspection by the grantee, FTA, Comptroller General, etc. for three years *after final payment is made by the grantee and all other matters are closed*.⁴ This three-year period begins, not with completion of the contract work, but with final payment, which may be considerably longer than three years after work completion. This will especially be true with cost-type contracts that require a final audit before final payment can be made. In these cases the three-year retention period does not begin until the audit is completed and final payment is made. The BPPM includes suggested clause language for third-party contracts in Appendix A.1, Clause #11 – *Access to Records and Reports*. Grantees should develop their clause language so it complies with the common grant rule language that contractors must retain records for three years “after final payment is made by the grantee and all other matters are closed.” The grantee may wish to ensure that such records are readily accessible.

³ These terms are defined in the MA, Section 1.m and 1.p. Grantees must ensure their contract terms and procurement policies clearly require record retention for three years after the final contract payment is made and not after completion of work.

⁴ 49 CFR 18.36 (i)(11).

Chapter 11

11 - Disputes

11.1 Protests (6/03)

11.2 Claims, Grievances and Other Disputes with Contractors (6/99)

11.1 PROTESTS

REQUIREMENT

§ 7.1. of FTA Circular 4220.1E states:

Written Protest Procedures. Grantees shall have written protest procedures to handle and resolve disputes relating to their procurements and shall in all instances disclose information regarding protests to FTA.¹ All protest decisions must be in writing. A protester must exhaust all administrative remedies with the grantee before pursuing a protest with FTA.

Reviews of protests by FTA will be limited to: (1) a grantee's failure to have or follow its protest procedures, or its failure to review a complaint or protest; or (2) violations of Federal law or regulation.²

An appeal to FTA must be received by the cognizant FTA regional or Headquarters Office within five (5) working days of the date the protester learned or should have learned of an adverse decision by the grantee or other basis of appeal to FTA.³

¹ - Prior versions of the Circular contained the language in this paragraph related to "disclos[ing] information regarding protests to FTA." FTA noted that this provision allowed for widely differing interpretations but found itself bound by the Common Grant Rule. FTA believes this provision requires grantees to, at a minimum, informally notify their FTA regional offices when they receive a protest related to a contract required to comply with the Circular and to similarly keep their regional offices apprised of the status of those protests. Regional offices may require grantees to forward copies of particular protests or all protests for information or review purposes at any time.

² - This paragraph has been aligned with the Common Grant Rule and practice by adding "violations of Federal law or regulation" to the basis of FTA protest jurisdiction. FTA will continue to limit its review of grantee protest decisions and will read this Common Grant Rule provision in conjunction with the provisions that express its intent to avoid substituting FTA's judgment for those of its grantees. FTA will not consider each and every appeal of grantees' protest decisions simply because a federal law or regulation may be involved. Instead, FTA will exercise discretionary jurisdiction over those cases deemed to involve issues important to the overall third party contracting program.

³ - Additionally, we have noted that requiring an appeal to be filed within five days of "the violation" yet also requiring protestors to extinguish their local remedies before filing with FTA led to some confusion. FTA has attempted to clarify this standard by starting the protestor's clock when it receives actual or constructive notice of an adverse decision or that a grantee failed to have or follow its procedures or review a complaint.

DISCUSSION

You can adopt protest procedures that will provide an outlet for supplier concerns that cannot be informally resolved. These procedures will help you resolve these concerns on a schedule that minimizes the ultimate cost to your agency. Consider including the procedures or key requirements of the procedures in your solicitations. If you adopt and adhere to these procedures, FTA's involvement will be very limited.

Purpose

A protest is a potential bidder's or contractor's remedy for correcting a perceived wrong in the procurement process. A protest must be accepted and reviewed with the understanding that integrity of the procurement process as well as the procurement office may be at stake.

If an offeror does not have a satisfactory means of resolving his/her disagreement with you, his/her efforts to obtain satisfaction, including the possibility of litigation, may substantially interfere with the procurement process and be costly to the agency. One aspect of the protest process is an acknowledgment that public procurement officials are making major public decisions, can conceivably err on occasion, and that there should be some process short of litigation to remedy such and error. The success of this process enables FTA to discharge its responsibility while seldom becoming directly involved in a procurement dispute.

Best Practices

There are three basic types of protests, based on the time in the procurement cycle when they occur.

- A pre-bid or solicitation phase protest is received prior to the bid opening or proposal due date.
- A pre-award protest is a protest against making an award and is received after receipt of proposals or bids, but before award of a contract.
- A post-award protest is a protest received after award of a contract.

Content of Procedures -To ensure that protests are received and processed effectively, all grantees must have adequate written bid protest procedures. It is recommended that these procedures be included or referenced in the solicitation document. If they are referenced, information must be included on how a copy of the procedures may be acquired by any interested party. When the procedures are requested, they should be provided immediately. The written procedures typically address the following elements:

- Difference in procedures for pre-bid, pre-award and post-award protests;

- Specific deadlines (in working days) for filing a protest, filing a request for reconsideration and for the grantee's response to a protest;
- Specific contents of a protest (name of protester, solicitation/contract number or description, statement of grounds for protest);
- Location where protests are to be filed;
- Statement that the grantee will respond, in detail, to each substantive issue raised in the protest,
- Identification of the responsible official who has the authority to make the final determination;
- Statement that the grantee's determination will be final;
- Statement that FTA will only entertain a protest that alleges the grantee failed to follow their protest procedures and that such a protest must be filed in accordance with the Circular; and
- Allowance for request for reconsideration (if data becomes available that was not previously known, or there has been an error of law or regulation).

Effect on Pending Actions - One of the concerns that may arise in administering a protest is the effect on the award or contract. The decision to open a bid or to award a contract prior to resolution of a protest rests with you. However, should the grounds for the protest be found valid by FTA, FTA may choose not to participate in the contract. You must weigh this risk against the cost to the agency for terminating the contract or providing alternative funding.

11.2 CLAIMS, GRIEVANCES AND OTHER DISPUTES WITH CONTRACTORS

REQUIREMENT
FTA Circular 4220.1E paragraph 7.k reads as follows: k. <u>Responsibility for Settlement of Contract Issues/Disputes.</u> Grantees alone will be responsible in accordance with good administrative practice and sound business judgement for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to, source evaluation, protests, disputes, and claims. These standards do not relieve the grantee of any contractual responsibility under its contracts.

FTA will not substitute its judgement for that of the grantee or subgrantee, unless the matter is primarily a Federal concern. Violations of the law will be referred to the local, State, or Federal authority having proper jurisdiction.

FTA Circular 5010.1C, Chapter I, Section 7b deals with issues of *claims* and *change orders*, including the settlement of *disputes*.

The FTA Master Agreement MA(12), October 1, 2005, Section 43-*Disputes, Breaches, Defaults, or Other Litigation*, states that FTA has a vested interest in the settlement of any dispute, breach, default, or litigation involving the Project. Accordingly:

- a. Notification to FTA. The Recipient agrees to notify FTA of any current or prospective major dispute, breach, default, or litigation that may affect the Federal Government's interests in the Project of the Federal Government's administration or enforcement of Federal laws or regulations. If the Recipient seeks to name the Federal Government as party to litigation for any reason, in any forum, the Recipient agrees to inform the FTA before doing so.
- b. Federal Interest in Recovery. The Federal Government retains the right to a proportionate share, based on the percentage of the Federal share awarded for the Project, of any proceeds derived from any third party recovery, except that the Recipient may return any liquidated damages recovered to the Project Account in lieu of returning the Federal share to the Federal Government.
- c. Enforcement. The Recipient agrees to pursue all legal rights available under any third party contract.
- d. FTA Concurrence. FTA reserves the right to concur in any compromise or settlement of any claim involving the Project and the Recipient.
- e. Alternative Dispute Resolution. FTA encourages the Recipient to use all alternative dispute resolutions procedures, as may be appropriate.

DISCUSSION

FTA Circular 4220.1E paragraph 7k gives grantees the authority to settle protests, claims and disputes with their third-party contractors. The Circular stipulates "FTA will not substitute its judgement for that of the grantee or subgrantee, *unless the matter is primarily a Federal concern.*" The types of situations that constitute a *Federal concern* are discussed below in the paragraph entitled *FTA Review and Concurrence*.

Notification of FTA-The Master Agreement MA(12), Section 43a, requires grantees to notify FTA of any current or prospective major dispute, breach, default, or litigation pertaining to the Project. And if the Recipient seeks to name the Federal Government as a party to the litigation for any reason, the Recipient must inform the FTA before doing so.

FTA Circular 5010.1C, Chapter I, Section 7b(1)(d) requires grantees to notify FTA of any current or prospective litigation or major disputed claim in excess of \$100,00 relating to any third party contract. This Circular also requires grantees to provide a list of all outstanding claims exceeding \$100,000 and a list of all claims settled during the reporting period as part of each quarterly progress report. A brief description and reasons for each claim should accompany this list.

FTA Review and Concurrence - The FTA Master Agreement MA(12), Section 43d, states that FTA reserves the right to concur in any compromise of settlement of any claim involving the Project and the grantee. FTA Circular 5010.1C, Chapter I, Section 7b(4), *FTA Review and Concurrence*, requires grantees to secure the FTA review and concurrence in a proposed claim settlement before using Federal funds in the following instances:

1. When the negotiated settlement exceeds \$100,00. This would include any situation when the grantee is waiving liquidated damages in an amount over \$100,000. The Government has a vested interest in the recovery of liquidated damages, and the general rule is that liquidated damages may not be waived. However, grantees may “set-off” the liquidated damages against some other valid claim of the contractor, but FTA concurrence is necessary in any “set-off” action.
2. When insufficient funds remain in the approved grant to cover the settlement. The Government cannot be obligated to pay the grantee an amount that would exceed the funds obligated on the grant. To do so would be a violation of the Anti-Deficiency Act.
3. Where a special Federal interest is declared because of program management concerns, possible mismanagement, impropriety, waste or fraud. FTA could notify the grantee that it wishes to review and concur in any particular claim/dispute settlement based on the criteria stated here in section 7b(4). Even more broadly, FTA may initiate a review of grantee claims under a particular grant whenever it deems a review to be necessary-- 5010.1C, Section 7b(5).
4. The requirement for FTA concurrence also applies to any settlement arrived at by arbitration, mediation, etc. Grantees must advise their contractors that any decisions reached through arbitration must be reviewed and approved by the FTA. The reason for this is that an arbitrator may require the grantee to pay for something that is ineligible for funding (unallowable cost) under the terms of the grant. The arbitrator may also require the grantee to pay its contractor an amount that would cause the funding limit of the grant to be exceeded, thus violating the Anti-Deficiency Act.

5. **There are certain situations that grantees must seek to avoid because they may result in the grantee being liable to its contractor but unable to recover from FTA. These circumstances may give rise to a FTA review, through its Project Management Offices and other oversight reviews, before FTA will participate in the cost of settling the claim/dispute. If grantees encounter any of these situations, and they believe the claim to be legitimate, they should be prepared to support a challenge by FTA. If the grantees's claim records substantiate that reasonable and prudent measures were taken to prevent or offset the causes underlying the claim, FTA may participate in the negotiated cost [(5010.1C, Section 7b(3)]. The types of situations in question are those where the grantee has failed to:**
- a) **obtain clear access to all needed right-of-way prior to award of the construction contract;**
 - b) **execute all required utility agreements in time to assume uninterrupted construction progress;**
 - c) **undertake comprehensive project planning and scheduling to achieve proper coordination among contractors;**
 - d) **inform potential contractors of all available geo-technical information on subsurface conditions;**
 - e) **assure that all grantee-furnished materials are compatible with contractor project facilities and/or equipment, and available when needed;**
 - f) **complete all pre-construction survey and engineering prior to issuing the contractor a Notice to Proceed;**
 - g) **obtain the necessary approvals and agreements from all other public authorities affected by the project prior to contract award;**
 - h) **assure that all design and shop drawings are promptly approved and made available to the contractor as needed.**

Freedom of Information Act - Grantees are cautioned that the written materials furnished to FTA with notifications of disputed claims or relating to proposed statements of claims and disputes, are subject to release to the public under the Freedom of Information Act (FOIA). Therefore, when the dispute is still in the evaluation/negotiation stage, and a settlement has not yet been reached, a prudent approach would be for grantees to include in their quarterly written reports to FTA only information that, if released, would not prejudice the grantee's negotiation or settlement strategy.

Best Practices

Steps to be Taken Prior to Negotiations - When a claim and/or grievance is initiated by one of the parties, the grantee should take the following steps:

- a) Request from the contractor a written detailed position on each separate claim setting forth the amount and rationale for the contractor's positions on each item.
- b) List all the counterclaims by the grantee, setting forth the amount and rationale for the grantee's position on each item.
- c) Perform a price, cost, technical and legal analysis, as required, for each claim and/or grievance presented by the parties. See BPPM Section 5.2 *Cost and Price Analysis*. A *technical analysis* is to determine the validity of the claims and/or grievances, and to determine the rebuttals to those claims and grievances. The *legal analysis* is to consider all the factors available after the price, cost, and technical reviews have been completed to determine the contractor's, the grantee's and the Government's (FTA) legal position. Each review should be performed by the persons qualified to make the particular review/analysis.
- d) The grantee should then establish its best position assuming it prevails on all of its claims and the other party loses all of its claims before a court or arbitration panel. This is considered the grantee's "best" position.
- e) The grantee should then determine the contractor's best position, assuming the contractor prevails on all its claims before a court or arbitration panel. This is the grantee's "worst" position.
- f) The grantee should then establish a "realistic" position, based on the grantee's best judgement as to each item in issue, by attempting to anticipate the outcome of a determination by a court or arbitration panel. The "realistic" position should result from consideration of all the arguments and facts gathered through the analysis above.
- g) Each claim or grievance item should be considered and handled separately in the grantee's preparation for negotiations with the contractor.
- h) If liquidated damages are involved in the claim/grievance settlement, the Government has a vested interest in the liquidated damages and will need a complete analysis of how the liquidated damages amount was determined. Once assessed, liquidated damages may not be waived by the grantee, without prior FTA concurrence. However, a valid setoff against some other contract claims or other tradeoff for other contractual deliverables may be appropriate with FTA approval. Liquidated damages are considered assessed when a written notification is sent to the contractor.

Sections 9.2.3.5 *Delays*, and 9.2.3.6 *Acceleration*, should be carefully reviewed for guidance when settling claims involving delays, or claims where the contractor alleges “constructive acceleration” on the part of the grantee. Where, for example, there are *concurrent delays* (those caused by both parties), and it is impossible to apportion or separate the delays as to how much is due to the actions of the separate parties, then liquidated damages cannot be enforced. On the other hand, if the delays can be apportioned as to contractor-caused, grantee-caused, and “excusable” per the contract terms, then the grantee can enforce liquidated damages to the extent of the contractor-caused delays (but not for the grantee-caused delays or for “excusable” delays). The end product of your negotiations with the Contractor on the issue of delays and liquidated damages would be a contract modification extending the delivery date for “excusable delays” as defined by the contract terms, as well as for delays for which the grantee is responsible (changes, constructive changes, etc.). The delivery date would not be extended for delays that were caused by the Contractor. The newly established delivery date would then become the date used to assess liquidated damages.

- i) If there is an arbitration clause in the third party contract, FTA must be notified before the matter is submitted to arbitration. FTA must concur in any arbitration award before it becomes final and Federal Funds are released.

Negotiations - Negotiations should be on an *item-by-item basis* with written arguments for each side. The grantee should aggressively pursue all claims and counterclaims as well as defend against all claims and counterclaims of the contractor. The final position arrived at through the negotiations should be set forth and justified in writing.

If diligent efforts to settle the claims and/or disputes on an item-by-item basis have failed to resolve all the items, then a determination can be made regarding the feasibility of a *total cost* or other type settlement. If the determination is made by the parties to go to a *total cost* or other type settlement, the grantee should write a detailed explanation of how the parties arrived at the conclusion that the total cost or the other type settlement was the best way to proceed. In addition, the grantee should provide a complete explanation of how the final settlement figure was reached, and how each item in the claim/dispute was considered.

Finally, the grantee should not accept a contractor’s claim for its cost without having conducted an appropriate review/analysis. If the grantee is unable to verify the cost prior to accepting it, the grantee should conditionally accept it subject to later audit verification.

When FTA Concurrence is Required - Should FTA request to review the proposed settlement before it is implemented between the grantee and its contractor, the grantee should send to the FTA Regional Office a detailed summary of the settlement, and include as backup the negotiation memorandum and all the pre-negotiation analyses, described above, that led to the negotiations. In addition, the grantee should provide a written opinion of counsel explaining

why the proposed settlement is fair and reasonable, consistent with State law, and in the best interests of the grantee and the Government.

Engaging Outside Counsel - If it becomes necessary for the grantee to engage outside counsel to handle the settlement negotiations or, if necessary, to litigate or arbitrate the case, the grantee must, if grant funds are requested to cover the legal costs, obtain FTA's concurrence in advance. Grantees must demonstrate to FTA that their own legal resources are inadequate to handle the issues at hand, whether because of the nature of the claim, the training and experience of its personnel, or the potential strain on the grantee's staff resources. Outside counsel must be selected through a competitive process that may range from being very informal to very formal. Note that a qualifications-based selection procedure, such as is permitted for A-E procurements, is not permitted for legal services; cost/price proposals must be requested and evaluated as apart of the selection process. The fee arrangement with outside counsel cannot be based upon a contingency or percentage of recovery methodology.

Avoiding Disputes Through Proper Documentation - *"Documentation of significant events as they occur in the form of correspondence, daily diary entries, inspector's daily reports, photographs, memoranda of telephone conversations and meetings, etc., creates a project record that is absolutely essential in evaluating claims reaching litigation. Absolute attention to documentation is vital in both discouraging submittals of invalid claims and properly analyzing any claim filed."*⁴

Daily Logs - The daily reports/logs of the grantee's inspector may be the most important source for claim research and defense. Inspectors and field engineers must be trained to spot change/claim situations and they must be instructed on what to include in their reports, both on a routine basis and when they sense a real or potential problem. The daily reports should track the construction progress against the approved schedule (CPM Schedule). The daily reports should also track the equipment on site as well as the utilization of equipment. These inspector reports must be monitored carefully by the inspector's supervisor to maintain high quality.

Documentation of meetings and telephone conversations - In order to avoid misunderstandings regarding agreements reached during meetings and telephone conversations with the Contractor and/or between grantee personnel, it is critical to prepare minutes of the meetings and distribute them to all of the attendees. All important telephone conversations should be recorded on a Telephone Call Record, noting the pertinent issues discussed, how the issues were resolved, who is responsible for taking the required action, etc. The other party to the call should always be sent a copy of the completed Telephone Call Record.

Photographs - Frequently, photographs are a valuable form of documentation in a claim situation. The grantee's resident engineer must make an adequate photographic record of the progress of the contract. The photographs must be dated, properly identified, annotated as to

⁴ - MARTA resident Engineer's Manual, Section 5.17 *Contractor Claims*.

who took the photograph and the weather conditions at the time, and filed. Photographs should cover the following items:

- Progress of the work
- Unusual construction techniques
- Accidents or damages
- Unsafe or hazardous working conditions
- Reinforcing steel prior to concrete placement
- Work completed prior to being covered
- Areas or activities where claims and/or changes are anticipated

The construction contract should itself contain provisions requiring the contractor to provide monthly progress photographs. The grantee's resident engineer must participate in the choosing of locations, angles, and subjects in order to maximize the usefulness of the photographs for progress records.

Alternative Dispute Resolution-The FTA Master Agreement MA(12), Section 43e, encourages grantees to use alternative dispute resolution procedures, as may be appropriate. The alternatives to litigation that are most commonly used are *arbitration and mediation*. Grantees are advised to be cautious in their decisions to use arbitration. In cases that are complex, arbitration may not be preferable over litigation because arbitrators frequently have limitations on the amount of time they can devote to any individual case. As a result, if the case is complex and time-consuming, it may be necessary to change arbitrators during the proceedings, and this may be very disruptive to the parties and their case. Arbitration may be more advisable for disputes that are not complex and do not involve a great deal of facts that must be determined in order to settle the claim. Grantees are advised to think the case through carefully before deciding not to litigate.

FEDERAL TRANSIT ADMINISTRATION
BEST PRACTICES PROCUREMENT MANUAL
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1. FLY AMERICA REQUIREMENTS
49 U.S.C. § 40118
41 CFR Part 301-10

Applicability to Contracts

The Fly America requirements apply to the transportation of persons or property, by air, between a place in the U.S. and a place outside the U.S., or between places outside the U.S., when the FTA will participate in the costs of such air transportation. Transportation on a foreign air carrier is permissible when provided by a foreign air carrier under a code share agreement when the ticket identifies the U.S. air carrier's designator code and flight number. Transportation by a foreign air carrier is also permissible if there is a bilateral or multilateral air transportation agreement to which the U.S. Government and a foreign government are parties and which the Federal DOT has determined meets the requirements of the Fly America Act.

Flow Down Requirements

The Fly America requirements flow down from FTA recipients and subrecipients to first tier contractors, who are responsible for ensuring that lower tier contractors and subcontractors are in compliance.

Model Clause/Language

The relevant statutes and regulations do not mandate any specified clause or language. FTA proposes the following language.

Fly America Requirements

The Contractor agrees to comply with 49 U.S.C. 40118 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

2. BUY AMERICA REQUIREMENTS

49 U.S.C. 5323(j)

49 C.F.R. Part 661

Applicability to Contracts

The Buy America requirements apply to the following types of contracts: Construction Contracts and Acquisition of Goods or Rolling Stock (valued at more than \$100,000).

Flow Down

The Buy America requirements flow down from FTA recipients and subrecipients to first tier contractors, who are responsible for ensuring that lower tier contractors and subcontractors are in compliance. The \$100,000 threshold applies only to the grantee contract, subcontracts under that amount are subject to Buy America.

Mandatory Clause/Language

The Buy America regulation, at 49 CFR 661.13, requires notification of the Buy America requirements in FTA-funded contracts, but does not specify the language to be used. The following language has been developed by FTA.

Buy America - The contractor agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. Part 661, which provide that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. 661.7, and include final assembly in the United States for 15 passenger vans and 15 passenger wagons produced by Chrysler Corporation, and microcomputer equipment and software. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11. Rolling stock must be assembled in the United States and have a 60 percent domestic content.

A bidder or offeror must submit to the FTA recipient the appropriate Buy America certification (below) with all bids or offers on FTA-funded contracts, except those subject to a general waiver. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive. This requirement does not apply to lower tier subcontractors.

Certification requirement for procurement of steel, iron, or manufactured products.

Certificate of Compliance with 49 U.S.C. 5323(j)(1)

The bidder or offeror hereby certifies that it will meet the requirements of 49 U.S.C. 5323(j)(1) and the applicable regulations in 49 C.F.R. Part 661.5.

Date _____

Signature _____

Company Name _____

Title _____

Certificate of Non-Compliance with 49 U.S.C. 5323(j)(1)

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j)(1) and 49 C.F.R. 661.5, but it may qualify for an exception pursuant to 49 U.S.C. 5323(j)(2)(A), 5323(j)(2)(B), or 5323(j)(2)(D), and 49 C.F.R. 661.7.

Date _____

Signature _____

Company Name _____

Title _____

Certification requirement for procurement of buses, other rolling stock and associated equipment.

Certificate of Compliance with 49 U.S.C. 5323(j)(2)(C).

The bidder or offeror hereby certifies that it will comply with the requirements of 49 U.S.C. 5323(j)(2)(C) and the regulations at 49 C.F.R. Part 661.11.

Date _____

Signature _____

Company Name _____

Title _____

Certificate of Non-Compliance with 49 U.S.C. 5323(j)(2)(C)

The bidder or offeror hereby certifies that it cannot comply with the requirements of 49 U.S.C. 5323(j)(2)(C) and 49 C.F.R. 661.11, but may qualify for an exception pursuant to 49 U.S.C. 5323(j)(2)(A), 5323(j)(2)(B), or 5323(j)(2)(D), and 49 CFR 661.7.

Date _____

Signature _____

Company Name _____

Title _____

3. CHARTER BUS REQUIREMENTS

49 U.S.C. 5323(d)

49 CFR Part 604

Applicability to Contracts

The Charter Bus requirements apply to the following type of contract: Operational Service Contracts.

Flow Down Requirements

The Charter Bus requirements flow down from FTA recipients and subrecipients to first tier service contractors.

Model Clause/Language

The relevant statutes and regulations do not mandate any specific clause or language. The following clause has been developed by FTA.

Charter Service Operations - The contractor agrees to comply with 49 U.S.C. 5323(d) and 49 CFR Part 604, which provides that recipients and subrecipients of FTA assistance are prohibited from providing charter service using federally funded equipment or facilities if there is at least one private charter operator willing and able to provide the service, except under one of the exceptions at 49 CFR 604.9. Any charter service provided under one of the exceptions must be "incidental," i.e., it must not interfere with or detract from the provision of mass transportation.

3. SCHOOL BUS REQUIREMENTS

49 U.S.C. 5323(F)

49 CFR Part 605

Applicability to Contracts

The School Bus requirements apply to the following type of contract: Operational Service Contracts.

Flow Down Requirements

The School Bus requirements flow down from FTA recipients and subrecipients to first tier service contractors.

Model Clause/Language

The relevant statutes and regulations do not mandate any specific clause or language. The following clause has been developed by FTA.

School Bus Operations - Pursuant to 69 U.S.C. 5323(f) and 49 CFR Part 605, recipients and subrecipients of FTA assistance may not engage in school bus operations exclusively for the transportation of students and school personnel in competition with private school bus operators unless qualified under specified exemptions. When operating exclusive school bus service under an allowable exemption, recipients and subrecipients may not use federally funded equipment, vehicles, or facilities.

4. CARGO PREFERENCE REQUIREMENTS**46 U.S.C. 1241****46 CFR Part 381****Applicability to Contracts**

The Cargo Preference requirements apply to all contracts involving equipment, materials, or commodities which may be transported by ocean vessels.

Flow Down

The Cargo Preference requirements apply to all subcontracts when the subcontract may be involved with the transport of equipment, material, or commodities by ocean vessel.

Model Clause/Language

The MARAD regulations at 46 CFR 381.7 contain suggested contract clauses. The following language is proffered by FTA.

Cargo Preference - Use of United States-Flag Vessels - The contractor agrees: a. to use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels; b. to furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA recipient (through the contractor in the case of a subcontractor's bill-of-lading.) c. to include these requirements in all subcontracts issued pursuant to this contract when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

5. SEISMIC SAFETY REQUIREMENTS

42 U.S.C. 7701 et seq. 49

CFR Part 41

Applicability to Contracts

The Seismic Safety requirements apply only to contracts for the construction of new buildings or additions to existing buildings.

Flow Down

The Seismic Safety requirements flow down from FTA recipients and subrecipients to first tier contractors to assure compliance, with the applicable building standards for Seismic Safety, including the work performed by all subcontractors.

Model Clauses/Language

The regulations do not provide suggested language for third-party contract clauses. The following language has been developed by FTA.

Seismic Safety - The contractor agrees that any new building or addition to an existing building will be designed and constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The contractor also agrees to ensure that all work performed under this contract including work performed by a subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

6. ENERGY CONSERVATION REQUIREMENTS

42 U.S.C. 6321 et seq.

49 CFR Part 18

Applicability to Contracts

The Energy Conservation requirements are applicable to all contracts.

Flow Down

The Energy Conservation requirements extend to all third party contractors and their contracts at every tier and subrecipients and their subagreements at every tier.

Model Clause/Language

No specific clause is recommended in the regulations because the Energy Conservation requirements are so dependent on the state energy conservation plan. The following language has been developed by FTA:

Energy Conservation - The contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

7. CLEAN WATER REQUIREMENTS **33 U.S.C. 1251**

Applicability to Contracts

The Clean Water requirements apply to each contract and subcontract which exceeds \$100,000.

Flow Down

The Clean Water requirements flow down to FTA recipients and subrecipients at every tier.

Model Clause/Language

While no mandatory clause is contained in the Federal Water Pollution Control Act, as amended, the following language developed by FTA contains all the mandatory requirements:

Clean Water - (1) The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. The Contractor agrees to report each violation to the Purchaser and understands and agrees that the Purchaser will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

(2) The Contractor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.

8. BUS TESTING **49 U.S.C. 5323(c)** **49 CFR Part 665**

Applicability to Contracts

The Bus Testing requirements pertain only to the acquisition of Rolling Stock/Turnkey.

Flow Down

The Bus Testing requirements should not flow down, except to the turnkey contractor as stated in Master Agreement.

Model Clause/Language

Clause and language therein are merely suggested. 49 CFR Part 665 does not contain specific language to be included in third party contracts but does contain requirements applicable to

subrecipients and third party contractors. Bus Testing Certification and language therein are merely suggested.

Bus Testing - The Contractor [Manufacturer] agrees to comply with 49 U.S.C. A 5323(c) and FTA's implementing regulation at 49 CFR Part 665 and shall perform the following:

- 1) A manufacturer of a new bus model or a bus produced with a major change in components or configuration shall provide a copy of the final test report to the recipient at a point in the procurement process specified by the recipient which will be prior to the recipient's final acceptance of the first vehicle.
- 2) A manufacturer who releases a report under paragraph 1 above shall provide notice to the operator of the testing facility that the report is available to the public.
- 3) If the manufacturer represents that the vehicle was previously tested, the vehicle being sold should have the identical configuration and major components as the vehicle in the test report, which must be provided to the recipient prior to recipient's final acceptance of the first vehicle. If the configuration or components are not identical, the manufacturer shall provide a description of the change and the manufacturer's basis for concluding that it is not a major change requiring additional testing.
- 4) If the manufacturer represents that the vehicle is "grandfathered" (has been used in mass transit service in the United States before October 1, 1988, and is currently being produced without a major change in configuration or components), the manufacturer shall provide the name and address of the recipient of such a vehicle and the details of that vehicle's configuration and major components.

CERTIFICATION OF COMPLIANCE WITH FTA'S BUS TESTING REQUIREMENTS

The undersigned [Contractor/Manufacturer] certifies that the vehicle offered in this procurement complies with 49 U.S.C. A 5323(c) and FTA's implementing regulation at 49 CFR Part 665.

The undersigned understands that misrepresenting the testing status of a vehicle acquired with Federal financial assistance may subject the undersigned to civil penalties as outlined in the Department of Transportation's regulation on Program Fraud Civil Remedies, 49 CFR Part 31. In addition, the undersigned understands that FTA may suspend or debar a manufacturer under the procedures in 49 CFR Part 29.

Date: _____

Signature: _____

Company Name: _____

Title: _____

9. PRE-AWARD AND POST DELIVERY AUDITS REQUIREMENTS

49 U.S.C. 5323

49 CFR Part 663

Applicability to Contracts

These requirements apply only to the acquisition of Rolling Stock/Turnkey.

Flow Down

These requirements should not flow down, except to the turnkey contractor as stated in Master Agreement.

Model Clause/Language

Clause and language therein are merely suggested. 49 C.F.R. Part 663 does not contain specific language to be included in third party contracts but does contain requirements applicable to subrecipients and third party contractors.

- Buy America certification is mandated under FTA regulation, "Pre-Award and Post-Delivery Audits of Rolling Stock Purchases," 49 C.F.R. 663.13.

-- Specific language for the Buy America certification is mandated by FTA regulation,

"Buy America Requirements--Surface Transportation Assistance Act of 1982, as amended,"

49 C.F.R. 661.12, but has been modified to include FTA's Buy America requirements codified at 49 U.S.C. A 5323(j).

Pre-Award and Post-Delivery Audit Requirements - The Contractor agrees to comply with 49 U.S.C. § 5323(l) and FTA's implementing regulation at 49 C.F.R. Part 663 and to submit the following certifications:

(1) Buy America Requirements: The Contractor shall complete and submit a declaration certifying either compliance or noncompliance with Buy America. If the Bidder/Offeror certifies compliance with Buy America, it shall submit documentation which lists 1) component and subcomponent parts of the rolling stock to be purchased identified by manufacturer of the parts, their country of origin and costs; and 2) the location of the final assembly point for the rolling stock, including a description of the activities that will take place at the final assembly point and the cost of final assembly.

(2) Solicitation Specification Requirements: The Contractor shall submit evidence that it will be capable of meeting the bid specifications.

(3) Federal Motor Vehicle Safety Standards (FMVSS): The Contractor shall submit 1) manufacturer's FMVSS self-certification sticker information that the vehicle complies with relevant FMVSS or 2) manufacturer's certified statement that the contracted buses will not be subject to FMVSS regulations.

BUY AMERICA CERTIFICATE OF COMPLIANCE WITH FTA REQUIREMENTS FOR BUSES, OTHER ROLLING STOCK, OR ASSOCIATED EQUIPMENT

(To be submitted with a bid or offer exceeding the small purchase threshold for Federal assistance programs, currently set at \$100,000.)

Certificate of Compliance

The bidder hereby certifies that it will comply with the requirements of 49 U.S.C. Section 5323(j)(2)(C), Section 165(b)(3) of the Surface Transportation Assistance Act of 1982, as amended, and the regulations of 49 C.F.R. 661.11:

Date: _____

Signature: _____

Company Name: _____

Title: _____

Certificate of Non-Compliance

The bidder hereby certifies that it cannot comply with the requirements of 49 U.S.C. Section 5323(j)(2)(C) and Section 165(b)(3) of the Surface Transportation Assistance Act of 1982, as amended, but may qualify for an exception to the requirements consistent with 49 U.S.C. Sections 5323(j)(2)(B) or (j)(2)(D), Sections 165(b)(2) or (b)(4) of the Surface Transportation Assistance Act, as amended, and regulations in 49 C.F.R. 661.7.

Date: _____

Signature: _____

Company Name: _____

Title: _____

10. LOBBYING
31 U.S.C. 1352
49 CFR Part 19
49 CFR Part 20

Applicability to Contracts

The Lobbying requirements apply to Construction/Architectural and Engineering/Acquisition of Rolling Stock/Professional Service Contract/Operational Service Contract/Turnkey contracts.

Flow Down

The Lobbying requirements mandate the maximum flow down, pursuant to Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352(b)(5) and 49 C.F.R. Part 19, Appendix A, Section 7.

Mandatory Clause/Language

Clause and specific language therein are mandated by 49 CFR Part 19, Appendix A.

Modifications have been made to the Clause pursuant to Section 10 of the Lobbying Disclosure Act of 1995, P.L. 104-65 [to be codified at 2 U.S.C. § 1601, *et seq.*]

- Lobbying Certification and Disclosure of Lobbying Activities for third party contractors are mandated by 31 U.S.C. 1352(b)(5), as amended by Section 10 of the Lobbying Disclosure Act of 1995, and DOT implementing regulation, "New Restrictions on Lobbying," at 49 CFR § 20.110(d)

- Language in Lobbying Certification is mandated by 49 CFR Part 19, Appendix A, Section 7, which provides that contractors file the certification required by 49 CFR Part 20, Appendix A.

Modifications have been made to the Lobbying Certification pursuant to Section 10 of the Lobbying Disclosure Act of 1995.

- Use of "Disclosure of Lobbying Activities," Standard Form-LLL set forth in Appendix B of 49 CFR Part 20, as amended by "Government wide Guidance For New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96) is mandated by 49 CFR Part 20, Appendix A.

Byrd Anti-Lobbying Amendment, 31 U.S.C. 1352, as amended by the Lobbying Disclosure Act of 1995, P.L. 104-65 [to be codified at 2 U.S.C. § 1601, *et seq.*] - Contractors who apply or bid for an award of \$100,000 or more shall file the certification required by 49 CFR part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the

name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

APPENDIX A, 49 CFR PART 20--CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

(To be submitted with each bid or offer exceeding \$100,000)

The undersigned [Contractor] certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, *et seq.*)]

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to

a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.]

The Contractor, _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. A 3801, *et seq.*, apply to this certification and disclosure, if any.

_____ Signature of Contractor's Authorized Official

_____ Name and Title of Contractor's Authorized Official

_____ Date

11. ACCESS TO RECORDS AND REPORTS

49 U.S.C. 5325

18 CFR 18.36 (i)

49 CFR 633.17

Applicability to Contracts

Reference Chart "Requirements for Access to Records and Reports by Type of Contracts"

Flow Down

FTA does not require the inclusion of these requirements in subcontracts.

Model Clause/Language

The specified language is not mandated by the statutes or regulations referenced, but the language provided paraphrases the statutory or regulatory language.

Access to Records - The following access to records requirements apply to this Contract:

1. Where the Purchaser is not a State but a local government and is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 C.F.R. 18.36(i), the Contractor agrees to provide the Purchaser, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions. Contractor also agrees, pursuant to 49 C.F.R. 633.17 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to Contractor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311.

2. Where the Purchaser is a State and is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 C.F.R. 633.17, Contractor agrees to provide the Purchaser, the FTA Administrator or his authorized representatives, including any PMO Contractor, access to the Contractor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311. By definition, a major capital project excludes contracts of less than the simplified acquisition threshold currently set at \$100,000.
3. Where the Purchaser enters into a negotiated contract for other than a small purchase or under the simplified acquisition threshold and is an institution of higher education, a hospital or other non-profit organization and is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 C.F.R. 19.48, Contractor agrees to provide the Purchaser, FTA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books, documents, papers and record of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions.
4. Where any Purchaser which is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 U.S.C. 5325(a) enters into a contract for a capital project or improvement (defined at 49 U.S.C. 5302(a)1) through other than competitive bidding, the Contractor shall make available records related to the contract to the Purchaser, the Secretary of Transportation and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.
5. The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
6. The Contractor agrees to maintain all books, records, accounts and reports required under this contract for a period of not less than three years after the date of termination or expiration of this contract, except in the event of litigation or settlement of claims arising from the performance of this contract, in which case Contractor agrees to maintain same until the Purchaser, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto. Reference 49 CFR 18.39(i)(11).
7. FTA does not require the inclusion of these requirements in subcontracts.

Requirements for Access to Records and Reports by Types of Contract

Contract Characteristics	Operational Service Contract	Turnkey	Construction	Architectural Engineering	Acquisition of Rolling Stock	Professional Services
<u>I State Grantees</u>						
a. Contracts below SAT (\$100,000)	None	Those imposed on state pass thru to Contractor	None	None	None	None
b. Contracts above \$100,000/Capital Projects	None unless ¹ non-competitive award		Yes, if non-competitive award or if funded thru ² 5307/5309/5311	None unless non-competitive award	None unless non-competitive award	None unless non-competitive award
<u>II Non State Grantees</u>						
a. Contracts below SAT (\$100,000)	Yes ³	Those imposed on non-state Grantee pass thru to Contractor	Yes	Yes	Yes	Yes
b. Contracts above \$100,000/Capital Projects	Yes ³		Yes	Yes	Yes	Yes

Sources of Authority:

¹ 49 USC 5325 (a)

² 49 CFR 633.17

³ 18 CFR 18.36 (i)

12. FEDERAL CHANGES 49 CFR Part 18

Applicability to Contracts

The Federal Changes requirement applies to all contracts.

Flow Down

The Federal Changes requirement flows down appropriately to each applicable changed requirement.

Model Clause/Language

No specific language is mandated. The following language has been developed by FTA.

Federal Changes - Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between Purchaser and FTA, as they may be amended or

promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

13. BONDING REQUIREMENTS

Applicability to Contracts

For those construction or facility improvement contracts or subcontracts exceeding \$100,000, FTA may accept the bonding policy and requirements of the recipient, provided that they meet the minimum requirements for construction contracts as follows:

- a. A bid guarantee from each bidder equivalent to five (5) percent of the bid price. The "bid guarantees" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.
- b. A performance bond on the part to the Contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.
- c. A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment, as required by law, of all persons supplying labor and material in the execution of the work provided for in the contract. Payment bond amounts required from Contractors are as follows:
 - (1) 50% of the contract price if the contract price is not more than \$1 million;
 - (2) 40% of the contract price if the contract price is more than \$1 million but not more than \$5 million; or
 - (3) \$2.5 million if the contract price is more than \$5 million.
- d. A cash deposit, certified check or other negotiable instrument may be accepted by a grantee in lieu of performance and payment bonds, provided the grantee has established a procedure to assure that the interest of FTA is adequately protected. An irrevocable letter of credit would also satisfy the requirement for a bond.

Flow Down

Bonding requirements flow down to the first tier contractors.

Model Clauses/Language

FTA does not prescribe specific wording to be included in third party contracts. FTA has prepared sample clauses as follows:

Bid Bond Requirements (Construction)**(a) Bid Security**

A Bid Bond must be issued by a fully qualified surety company acceptable to (Recipient) and listed as a company currently authorized under 31 CFR, Part 223 as possessing a Certificate of Authority as described thereunder.

(b) Rights Reserved

In submitting this Bid, it is understood and agreed by bidder that the right is reserved by (Recipient) to reject any and all bids, or part of any bid, and it is agreed that the Bid may not be withdrawn for a period of [ninety (90)] days subsequent to the opening of bids, without the written consent of (Recipient).

It is also understood and agreed that if the undersigned bidder should withdraw any part or all of his bid within [ninety (90)] days after the bid opening without the written consent of (Recipient), shall refuse or be unable to enter into this Contract, as provided above, or refuse or be unable to furnish adequate and acceptable Performance Bonds and Labor and Material Payments Bonds, as provided above, or refuse or be unable to furnish adequate and acceptable insurance, as provided above, he shall forfeit his bid security to the extent of (Recipient's) damages occasioned by such withdrawal, or refusal, or inability to enter into an agreement, or provide adequate security therefor.

It is further understood and agreed that to the extent the defaulting bidder's Bid Bond, Certified Check, Cashier's Check, Treasurer's Check, and/or Official Bank Check (excluding any income generated thereby which has been retained by (Recipient) as provided in [Item x "Bid Security" of the Instructions to Bidders]) shall prove inadequate to fully recompense (Recipient) for the damages occasioned by default, then the undersigned bidder agrees to indemnify (Recipient) and pay over to (Recipient) the difference between the bid security and (Recipient's) total damages, so as to make (Recipient) whole.

The undersigned understands that any material alteration of any of the above or any of the material contained on this form, other than that requested, will render the bid unresponsive.

Performance and Payment Bonding Requirements (Construction)

The Contractor shall be required to obtain performance and payment bonds as follows:

(a) Performance bonds

1. The penal amount of performance bonds shall be 100 percent of the original contract price, unless the (Recipient) determines that a lesser amount would be adequate for the protection of the (Recipient).
2. The (Recipient) may require additional performance bond protection when a contract price is increased. The increase in protection shall generally equal 100 percent of the increase in contract price. The (Recipient) may secure additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(b) Payment bonds

1. The penal amount of the payment bonds shall equal:

- (i) Fifty percent of the contract price if the contract price is not more than \$1 million.
- (ii) Forty percent of the contract price if the contract price is more than \$1 million but not more than \$5 million; or
- (iii) Two and one half million if the contract price is more than \$5 million.

2. If the original contract price is \$5 million or less, the (Recipient) may require additional protection as required by subparagraph 1 if the contract price is increased.

Performance and Payment Bonding Requirements (Non-Construction)

The Contractor may be required to obtain performance and payment bonds when necessary to protect the (Recipient's) interest.

- (a) The following situations may warrant a performance bond:

1. (Recipient) property or funds are to be provided to the contractor for use in performing the contract or as partial compensation (as in retention of salvaged material).
2. A contractor sells assets to or merges with another concern, and the (Recipient), after recognizing the latter concern as the successor in interest, desires assurance that it is financially capable.
3. Substantial progress payments are made before delivery of end items starts.
4. Contracts are for dismantling, demolition, or removal of improvements.

- (b) When it is determined that a performance bond is required, the Contractor shall be required to obtain performance bonds as follows:

1. The penal amount of performance bonds shall be 100 percent of the original contract price, unless the (Recipient) determines that a lesser amount would be adequate for the protection of the (Recipient).
 2. The (Recipient) may require additional performance bond protection when a contract price is increased. The increase in protection shall generally equal 100 percent of the increase in contract price. The (Recipient) may secure additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.
- (c) A payment bond is required only when a performance bond is required, and if the use of payment bond is in the (Recipient's) interest.
- (d) When it is determined that a payment bond is required, the Contractor shall be required to obtain payment bonds as follows:
1. The penal amount of payment bonds shall equal:
 - (i) Fifty percent of the contract price if the contract price is not more than \$1 million;
 - (ii) Forty percent of the contract price if the contract price is more than \$1 million but not more than \$5 million; or
 - (iii) Two and one half million if the contract price is increased.

Advance Payment Bonding Requirements

The Contractor may be required to obtain an advance payment bond if the contract contains an advance payment provision and a performance bond is not furnished. The (recipient) shall determine the amount of the advance payment bond necessary to protect the (Recipient).

Patent Infringement Bonding Requirements (Patent Indemnity)

The Contractor may be required to obtain a patent indemnity bond if a performance bond is not furnished and the financial responsibility of the Contractor is unknown or doubtful. The (recipient) shall determine the amount of the patent indemnity to protect the (Recipient).

Warranty of the Work and Maintenance Bonds

1. The Contractor warrants to (Recipient), the Architect and/or Engineer that all materials and equipment furnished under this Contract will be of highest quality and new unless otherwise specified by (Recipient), free from faults and defects and in conformance with the Contract Documents. All work not so conforming to these standards shall be considered defective. If

required by the [Project Manager], the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

2. The Work furnished must be of first quality and the workmanship must be the best obtainable in the various trades. The Work must be of safe, substantial and durable construction in all respects. The Contractor hereby guarantees the Work against defective materials or faulty workmanship for a minimum period of one (1) year after Final Payment by (Recipient) and shall replace or repair any defective materials or equipment or faulty workmanship during the period of the guarantee at no cost to (Recipient). As additional security for these guarantees, the Contractor shall, prior to the release of Final Payment [as provided in Item X below], furnish separate Maintenance (or Guarantee) Bonds in form acceptable to (Recipient) written by the same corporate surety that provides the Performance Bond and Labor and Material Payment Bond for this Contract. These bonds shall secure the Contractor's obligation to replace or repair defective materials and faulty workmanship for a minimum period of one (1) year after Final Payment and shall be written in an amount equal to ONE HUNDRED PERCENT (100%) of the CONTRACT SUM, as adjusted (if at all).

14. CLEAN AIR
42 U.S.C. 7401 et seq
40 CFR 15.61
49 CFR Part 18

Applicability to Contracts

The Clean Air requirements apply to all contracts exceeding \$100,000, including indefinite quantities where the amount is expected to exceed \$100,000 in any year.

Flow Down

The Clean Air requirements flow down to all subcontracts which exceed \$100,000.

Model Clauses/Language

No specific language is required. FTA has proposed the following language.

Clean Air - (1) The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. The Contractor agrees to report each violation to the Purchaser and understands and agrees that the Purchaser will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

(2) The Contractor also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.

15. RECYCLED PRODUCTS
42 U.S.C. 6962
40 CFR Part 247
Executive Order 12873

Applicability to Contracts

The Recycled Products requirements apply to all contracts for items designated by the EPA, when the purchaser or contractor procures \$10,000 or more of one of these items during the fiscal year, or has procured \$10,000 or more of such items in the previous fiscal year, using Federal funds. New requirements for "recovered materials" will become effective May 1, 1996. These new regulations apply to all procurement actions involving items designated by the EPA, where the procuring agency purchases \$10,000 or more of one of these items in a fiscal year, or when the cost of such items purchased during the previous fiscal year was \$10,000.

Flow Down

These requirements flow down to all to all contractor and subcontractor tiers.

Model Clause/Language

No specific clause is mandated, but FTA has developed the following language.

Recovered Materials - The contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

16. DAVIS-BACON AND COPELAND ANTI-KICKBACK ACTS

Background and Application

The Davis-Bacon and Copeland Acts are codified at 40 USC 3141, *et seq.* and 18 USC 874. The Acts apply to grantee construction contracts and subcontracts that "at least partly are financed by a loan or grant from the Federal Government." 40 USC 3145(a), 29 CFR 5.2(h), 49 CFR 18.36(i)(5). The Acts apply to any construction contract over \$2,000. 40 USC 3142(a), 29 CFR 5.5(a). 'Construction,' for purposes of the Acts, includes "actual construction, alteration and/or repair, including painting and decorating." 29 CFR 5.5(a). The requirements of both Acts are incorporated into a single clause (*see* 29 CFR 3.11) enumerated at 29 CFR 5.5(a) and reproduced below.

The clause language is drawn directly from 29 CFR 5.5(a) and any deviation from the model clause below should be coordinated with counsel to ensure the Acts' requirements are satisfied.

Clause Language**Davis-Bacon and Copeland Anti-Kickback Acts**

(1) **Minimum wages** - (i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) Except with respect to helpers as defined as 29 CFR 5.2(n)(4), the work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination; and

(4) With respect to helpers as defined in 29 CFR 5.2(n)(4), such a classification prevails in the area in which the work is performed.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(v)(A) The contracting officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination with 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(v) (B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(2) **Withholding** - The [*insert name of grantee*] shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or

advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, the [*insert name of grantee*] may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) **Payrolls and basic records** - (i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the [*insert name of grantee*] for transmission to the Federal Transit Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5. This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, DC 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under section 5.5(a)(3)(i) of Regulations, 29 CFR part 5 and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Federal Transit Administration or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) **Apprentices and trainees** - (i) Apprentices - Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the

ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division of the U.S. Department of Labor determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees - Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment

and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) **Equal employment opportunity** - The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) **Compliance with Copeland Act requirements** - The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) **Subcontracts** - The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the Federal Transit Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) **Contract termination: debarment** - A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) **Compliance with Davis-Bacon and Related Act requirements** - All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) **Disputes concerning labor standards** - Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

(10) **Certification of eligibility** - (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

17. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Background and Application

The Contract Work Hours and Safety Standards Act is codified at 40 USC 3701, *et seq.* The Act applies to grantee contracts and subcontracts “financed at least in part by loans or grants from ... the [Federal] Government.” 40 USC 3701(b)(1)(B)(iii) and (b)(2), 29 CFR 5.2(h), 49 CFR 18.36(i)(6). Although the original Act required its application in any construction contract over \$2,000 or non-construction contract to which the Act applied over \$2,500 (and language to that effect is still found in 49 CFR 18.36(i)(6)), the Act no longer applies to any “contract in an amount that is not greater than \$100,000.” 40 USC 3701(b)(3) (A)(iii).

The Act applies to construction contracts and, in very limited circumstances, non-construction projects that employ “laborers or mechanics on a public work.” These non-construction applications do not generally apply to transit procurements because transit procurements (to include rail cars and buses) are deemed “commercial items.” 40 USC 3707, 41 USC 403 (12). A grantee that contemplates entering into a contract to procure a developmental or unique item should consult counsel to determine if the Act applies to that procurement and that additional language required by 29 CFR 5.5(c) must be added to the basic clause below.

The clause language is drawn directly from 29 CFR 5.5(b) and any deviation from the model clause below should be coordinated with counsel to ensure the Act’s requirements are satisfied.

Clause Language

Contract Work Hours and Safety Standards

(1) **Overtime requirements** - No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) **Violation; liability for unpaid wages; liquidated damages** - In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.

(3) **Withholding for unpaid wages and liquidated damages** - The (*write in the name of the grantee*) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

(4) **Subcontracts** - The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section.

18. [RESERVED]

19. NO GOVERNMENT OBLIGATION TO THIRD PARTIES

Applicability to Contracts

Applicable to all contracts.

Flow Down

Not required by statute or regulation for either primary contractors or subcontractors, this concept should flow down to all levels to clarify, to all parties to the contract, that the Federal Government does not have contractual liability to third parties, absent specific written consent.

Model Clause/Language

While no specific language is required, FTA has developed the following language.

No Obligation by the Federal Government.

(1) The Purchaser and Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the Purchaser, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

(2) The Contractor agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

**20. PROGRAM FRAUD AND FALSE OR FRAUDULENT STATEMENTS
AND RELATED ACTS**
31 U.S.C. 3801 et seq.
49 CFR Part 31 18 U.S.C. 1001
49 U.S.C. 5307

Applicability to Contracts

These requirements are applicable to all contracts.

Flow Down

These requirements flow down to contractors and subcontractors who make, present, or submit covered claims and statements.

Model Clause/Language

These requirements have no specified language, so FTA proffers the following language.

Program Fraud and False or Fraudulent Statements or Related Acts.

(1) The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 *et seq.* and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Project. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

(2) The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

(3) The Contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

21. TERMINATION
49 U.S.C. Part 18
FTA Circular 4220.1E

Applicability to Contracts

All contracts (with the exception of contracts with nonprofit organizations and institutions of higher education,) in excess of \$10,000 shall contain suitable provisions for termination by the grantee including the manner by which it will be effected and the basis for settlement. (For contracts with nonprofit organizations and institutions of higher education the threshold is \$100,000.) In addition, such contracts shall describe conditions under which the contract may be terminated for default as well as conditions where the contract may be terminated because of circumstances beyond the control of the contractor.

Flow Down

The termination requirements flow down to all contracts in excess of \$10,000, with the exception of contracts with nonprofit organizations and institutions of higher learning.

Model Clause/Language

FTA does not prescribe the form or content of such clauses. The following are suggestions of clauses to be used in different types of contracts:

a. Termination for Convenience (General Provision) The (Recipient) may terminate this contract, in whole or in part, at any time by written notice to the Contractor when it is in the Government's best interest. The Contractor shall be paid its costs, including contract close-out costs, and profit on work performed up to the time of termination. The Contractor shall promptly submit its termination claim to (Recipient) to be paid the Contractor. If the Contractor has any property in its possession belonging to the (Recipient), the Contractor will account for the same, and dispose of it in the manner the (Recipient) directs.

b. Termination for Default [Breach or Cause] (General Provision) If the Contractor does not deliver supplies in accordance with the contract delivery schedule, or, if the contract is for services, the Contractor fails to perform in the manner called for in the contract, or if the Contractor fails to comply with any other provisions of the contract, the (Recipient) may terminate this contract for default. Termination shall be effected by serving a notice of termination on the contractor setting forth the manner in which the Contractor is in default. The contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner of performance set forth in the contract.

If it is later determined by the (Recipient) that the Contractor had an excusable reason for not performing, such as a strike, fire, or flood, events which are not the fault of or are beyond the control of the Contractor, the (Recipient), after setting up a new delivery of performance schedule, may allow the Contractor to continue work, or treat the termination as a termination for convenience.

c. Opportunity to Cure (General Provision) The (Recipient) in its sole discretion may, in the case of a termination for breach or default, allow the Contractor [an appropriately short period of time] in which to cure the defect. In such case, the notice of termination will state the time period in which cure is permitted and other appropriate conditions

If Contractor fails to remedy to (Recipient)'s satisfaction the breach or default of any of the terms, covenants, or conditions of this Contract within [ten (10) days] after receipt by Contractor of written notice from (Recipient) setting forth the nature of said breach or default, (Recipient) shall have the right to terminate the Contract without any further obligation to Contractor. Any such termination for default shall not in any way operate to preclude (Recipient) from also pursuing all available remedies against Contractor and its sureties for said breach or default.

d. Waiver of Remedies for any Breach In the event that (Recipient) elects to waive its remedies for any breach by Contractor of any covenant, term or condition of this Contract, such waiver by (Recipient) shall not limit (Recipient)'s remedies for any succeeding breach of that or of any other term, covenant, or condition of this Contract.

e. Termination for Convenience (Professional or Transit Service Contracts) The (Recipient), by written notice, may terminate this contract, in whole or in part, when it is in the Government's interest. If this contract is terminated, the Recipient shall be liable only for payment under the payment provisions of this contract for services rendered before the effective date of termination.

f. Termination for Default (Supplies and Service) If the Contractor fails to deliver supplies or to perform the services within the time specified in this contract or any extension or if the Contractor fails to comply with any other provisions of this contract, the (Recipient) may terminate this contract for default. The (Recipient) shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. The Contractor will only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner or performance set forth in this contract.

If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Recipient.

g. Termination for Default (Transportation Services) If the Contractor fails to pick up the commodities or to perform the services, including delivery services, within the time specified in

this contract or any extension or if the Contractor fails to comply with any other provisions of this contract, the (Recipient) may terminate this contract for default. The (Recipient) shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of default. The Contractor will only be paid the contract price for services performed in accordance with the manner of performance set forth in this contract.

If this contract is terminated while the Contractor has possession of Recipient goods, the Contractor shall, upon direction of the (Recipient), protect and preserve the goods until surrendered to the Recipient or its agent. The Contractor and (Recipient) shall agree on payment for the preservation and protection of goods. Failure to agree on an amount will be resolved under the Dispute clause.

If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the (Recipient).

h. Termination for Default (Construction) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract or any extension or fails to complete the work within this time, or if the Contractor fails to comply with any other provisions of this contract, the (Recipient) may terminate this contract for default. The (Recipient) shall terminate by delivering to the Contractor a Notice of Termination specifying the nature of the default. In this event, the Recipient may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Recipient resulting from the Contractor's refusal or failure to complete the work within specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Recipient in completing the work.

The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause if-

1. the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include: acts of God, acts of the Recipient, acts of another Contractor in the performance of a contract with the Recipient, epidemics, quarantine restrictions, strikes, freight embargoes; and
2. the contractor, within [10] days from the beginning of any delay, notifies the (Recipient) in writing of the causes of delay. If in the judgment of the (Recipient), the delay is excusable, the time for completing the work shall be extended. The judgment of the (Recipient) shall be final and conclusive on the parties, but subject to appeal under the Disputes clauses.

If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Recipient.

i. Termination for Convenience or Default (Architect and Engineering) The (Recipient) may terminate this contract in whole or in part, for the Recipient's convenience or because of the failure of the Contractor to fulfill the contract obligations. The (Recipient) shall terminate by delivering to the Contractor a Notice of Termination specifying the nature, extent, and effective date of the termination. Upon receipt of the notice, the Contractor shall (1) immediately discontinue all services affected (unless the notice directs otherwise), and (2) deliver to the Contracting Officer all data, drawings, specifications, reports, estimates, summaries, and other information and materials accumulated in performing this contract, whether completed or in process.

If the termination is for the convenience of the Recipient, the Contracting Officer shall make an equitable adjustment in the contract price but shall allow no anticipated profit on unperformed services.

If the termination is for failure of the Contractor to fulfill the contract obligations, the Recipient may complete the work by contract or otherwise and the Contractor shall be liable for any additional cost incurred by the Recipient.

If, after termination for failure to fulfill contract obligations, it is determined that the Contractor was not in default, the rights and obligations of the parties shall be the same as if the termination had been issued for the convenience of the Recipient.

j. Termination for Convenience of Default (Cost-Type Contracts) The (Recipient) may terminate this contract, or any portion of it, by serving a notice of termination on the Contractor. The notice shall state whether the termination is for convenience of the (Recipient) or for the default of the Contractor. If the termination is for default, the notice shall state the manner in which the contractor has failed to perform the requirements of the contract. The Contractor shall account for any property in its possession paid for from funds received from the (Recipient), or property supplied to the Contractor by the (Recipient). If the termination is for default, the (Recipient) may fix the fee, if the contract provides for a fee, to be paid the contractor in proportion to the value, if any, of work performed up to the time of termination. The Contractor shall promptly submit its termination claim to the (Recipient) and the parties shall negotiate the termination settlement to be paid the Contractor.

If the termination is for the convenience of the (Recipient), the Contractor shall be paid its contract close-out costs, and a fee, if the contract provided for payment of a fee, in proportion to the work performed up to the time of termination.

If, after serving a notice of termination for default, the (Recipient) determines that the Contractor has an excusable reason for not performing, such as strike, fire, flood, events which are not the fault of and are beyond the control of the contractor, the (Recipient), after setting up a new work schedule, may allow the Contractor to continue work, or treat the termination as a termination for convenience.

22. GOVERNMENT-WIDE DEBARMENT AND SUSPENSION (NONPROCUREMENT)

Background and Applicability

In conjunction with the Office of Management and Budget and other affected Federal agencies, DOT published an update to 49 CFR Part 29 on November 26, 2003. This government-wide regulation implements Executive Order 12549, *Debarment and Suspension*, Executive Order 12689, *Debarment and Suspension*, and 31 U.S.C. 6101 note (Section 2455, Public Law 103-355, 108 Stat. 3327).

The provisions of Part 29 apply to all grantee contracts and subcontracts at any level expected to equal or exceed \$25,000 as well as any contract or subcontract (at any level) for Federally required auditing services. 49 CFR 29.220(b). This represents a change from prior practice in that the dollar threshold for application of these rules has been lowered from \$100,000 to \$25,000. These are contracts and subcontracts referred to in the regulation as “covered transactions.”

Grantees, contractors, and subcontractors (at any level) that enter into covered transactions are required to verify that the entity (as well as its principals and affiliates) they propose to contract or subcontract with is not excluded or disqualified. They do this by (a) Checking the Excluded Parties List System, (b) Collecting a certification from that person, or (c) Adding a clause or condition to the contract or subcontract. This represents a change from prior practice in that certification is still acceptable but is no longer required. 49 CFR 29.300.

Grantees, contractors, and subcontractors who enter into covered transactions also must require the entities they contract with to comply with 49 CFR 29, subpart C and include this requirement in their own subsequent covered transactions (i.e., the requirement flows down to subcontracts at all levels).

Clause Language

The following clause language is suggested, not mandatory. It incorporates the optional method of verifying that contractors are not excluded or disqualified by certification.

Suspension and Debarment

This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the contractor is required to verify that none of the contractor, its principals, as

defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

The contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by **{insert agency name}**. If it is later determined that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to **{insert agency name}**, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

23. PRIVACY ACT **5 U.S.C. 552**

Applicability to Contracts

When a grantee maintains files on drug and alcohol enforcement activities for FTA, and those files are organized so that information could be retrieved by personal identifier, the Privacy Act requirements apply to all contracts.

Flow Down

The Federal Privacy Act requirements flow down to each third party contractor and their contracts at every tier.

Model Clause/Language

The text of the following clause has not been mandated by statute or specific regulation, but has been developed by FTA.

Contracts Involving Federal Privacy Act Requirements - The following requirements apply to the Contractor and its employees that administer any system of records on behalf of the Federal Government under any contract:

(1) The Contractor agrees to comply with, and assures the compliance of its employees with, the information restrictions and other applicable requirements of the Privacy Act of 1974,

5 U.S.C. § 552a. Among other things, the Contractor agrees to obtain the express consent of the Federal Government before the Contractor or its employees operate a system of records on behalf of the Federal Government. The Contractor understands that the requirements of the Privacy Act, including the civil and criminal penalties for violation of that Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of the underlying contract.

(2) The Contractor also agrees to include these requirements in each subcontract to administer any system of records on behalf of the Federal Government financed in whole or in part with Federal assistance provided by FTA.

24. CIVIL RIGHTS REQUIREMENTS
29 U.S.C. § 623, 42 U.S.C. § 2000
42 U.S.C. § 6102, 42 U.S.C. § 12112
42 U.S.C. § 12132, 49 U.S.C. § 5332
29 CFR Part 1630, 41 CFR Parts 60 et seq.

Applicability to Contracts

The Civil Rights Requirements apply to all contracts.

Flow Down

The Civil Rights requirements flow down to all third party contractors and their contracts at every tier.

Model Clause/Language

The following clause was predicated on language contained at 49 CFR Part 19, Appendix A, but FTA has shortened the lengthy text.

Civil Rights - The following requirements apply to the underlying contract:

(1) **Nondiscrimination** - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. In addition, the Contractor agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue.

(2) **Equal Employment Opportunity** - The following equal employment opportunity requirements apply to the underlying contract:

(a) Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Contractor agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOL) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Contractor agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(b) Age - In accordance with section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. §§ 623 and Federal transit law at 49 U.S.C. § 5332, the Contractor agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(c) Disabilities - In accordance with section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Contractor agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining to employment of persons with disabilities. In addition, the Contractor agrees to comply with any implementing requirements FTA may issue.

(3) The Contractor also agrees to include these requirements in each subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

25. BREACHES AND DISPUTE RESOLUTION

49 CFR Part 18 FTA Circular 4220.1E

Applicability to Contracts

All contracts in excess of \$100,000 shall contain provisions or conditions which will allow for administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as may be appropriate. This may

include provisions for bonding, penalties for late or inadequate performance, retained earnings, liquidated damages or other appropriate measures.

Flow Down

The Breaches and Dispute Resolutions requirements flow down to all tiers.

Model Clauses/Language

FTA does not prescribe the form or content of such provisions. What provisions are developed will depend on the circumstances and the type of contract. Recipients should consult legal counsel in developing appropriate clauses. The following clauses are examples of provisions from various FTA third party contracts.

Disputes - Disputes arising in the performance of this Contract which are not resolved by agreement of the parties shall be decided in writing by the authorized representative of (Recipient)'s [title of employee]. This decision shall be final and conclusive unless within [ten (10)] days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to the [title of employee]. In connection with any such appeal, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the [title of employee] shall be binding upon the Contractor and the Contractor shall abide by the decision.

Performance During Dispute - Unless otherwise directed by (Recipient), Contractor shall continue performance under this Contract while matters in dispute are being resolved.

Claims for Damages - Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the party or of any of his employees, agents or others for whose acts he is legally liable, a claim for damages therefor shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

Remedies - Unless this contract provides otherwise, all claims, counterclaims, disputes and other matters in question between the (Recipient) and the Contractor arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the State in which the (Recipient) is located.

Rights and Remedies - The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the (Recipient), (Architect) or Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

26. PATENT AND RIGHTS IN DATA

37 CFR Part 401 49 CFR Parts 18 and 19

Applicability to Contracts

Patent and rights in data requirements for federally assisted projects ONLY apply to research projects in which FTA finances the purpose of the grant is to finance the development of a product or information. These patent and data rights requirements do not apply to capital projects or operating projects, even though a small portion of the sales price may cover the cost of product development or writing the user's manual.

Flow Down

The Patent and Rights in Data requirements apply to all contractors and their contracts at every tier.

Model Clause/Language

The FTA patent clause is substantially similar to the text of 49 C.F.R. Part 19, Appendix A, Section 5, but the rights in data clause reflects FTA objectives. For patent rights, FTA is governed by Federal law and regulation. For data rights, the text on copyrights is insufficient to meet FTA's purposes for awarding research grants. This model clause, with larger rights as a standard, is proposed with the understanding that this standard could be modified to FTA's needs.

CONTRACTS INVOLVING EXPERIMENTAL, DEVELOPMENTAL, OR RESEARCH WORK.

A. **Rights in Data** - This following requirements apply to each contract involving experimental, developmental or research work:

(1) The term "subject data" used in this clause means recorded information, whether or not copyrighted, that is delivered or specified to be delivered under the contract. The term includes graphic or pictorial delineation in media such as drawings or photographs; text in specifications or related performance or design-type documents; machine forms such as punched cards, magnetic tape, or computer memory printouts; and information retained in computer memory. Examples include, but are not limited to: computer software, engineering drawings and associated lists, specifications, standards, process sheets, manuals, technical reports, catalog item identifications, and related information. The term "subject data" does not include financial reports, cost analyses, and similar information incidental to contract administration.

(2) The following restrictions apply to all subject data first produced in the performance of the contract to which this Attachment has been added:

(a) Except for its own internal use, the Purchaser or Contractor may not publish or reproduce subject data in whole or in part, or in any manner or form, nor may the Purchaser or Contractor

authorize others to do so, without the written consent of the Federal Government, until such time as the Federal Government may have either released or approved the release of such data to the public; this restriction on publication, however, does not apply to any contract with an academic institution.

(b) In accordance with 49 C.F.R. § 18.34 and 49 C.F.R. § 19.36, the Federal Government reserves a royalty-free, non-exclusive and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use, for "Federal Government purposes," any subject data or copyright described in subsections (2)(b)1 and (2)(b)2 of this clause below. As used in the previous sentence, "for Federal Government purposes," means use only for the direct purposes of the Federal Government. Without the copyright owner's consent, the Federal Government may not extend its Federal license to any other party.

1. Any subject data developed under that contract, whether or not a copyright has been obtained; and
2. Any rights of copyright purchased by the Purchaser or Contractor using Federal assistance in whole or in part provided by FTA.

(c) When FTA awards Federal assistance for experimental, developmental, or research work, it is FTA's general intention to increase transportation knowledge available to the public, rather than to restrict the benefits resulting from the work to participants in that work. Therefore, unless FTA determines otherwise, the Purchaser and the Contractor performing experimental, developmental, or research work required by the underlying contract to which this Attachment is added agrees to permit FTA to make available to the public, either FTA's license in the copyright to any subject data developed in the course of that contract, or a copy of the subject data first produced under the contract for which a copyright has not been obtained. If the experimental, developmental, or research work, which is the subject of the underlying contract, is not completed for any reason whatsoever, all data developed under that contract shall become subject data as defined in subsection (a) of this clause and shall be delivered as the Federal Government may direct. This subsection (c), however, does not apply to adaptations of automatic data processing equipment or programs for the Purchaser or Contractor's use whose costs are financed in whole or in part with Federal assistance provided by FTA for transportation capital projects.

(d) Unless prohibited by state law, upon request by the Federal Government, the Purchaser and the Contractor agree to indemnify, save, and hold harmless the Federal Government, its officers, agents, and employees acting within the scope of their official duties against any liability, including costs and expenses, resulting from any willful or intentional violation by the Purchaser or Contractor of proprietary rights, copyrights, or right of privacy, arising out of the publication, translation, reproduction, delivery, use, or disposition of any data furnished under that contract. Neither the Purchaser nor the Contractor shall be required to indemnify the Federal Government for any such liability arising out of the wrongful act of any employee, official, or agents of the Federal Government.

(e) Nothing contained in this clause on rights in data shall imply a license to the Federal Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Federal Government under any patent.

(f) Data developed by the Purchaser or Contractor and financed entirely without using Federal assistance provided by the Federal Government that has been incorporated into work required by the underlying contract to which this Attachment has been added is exempt from the requirements of subsections (b), (c), and (d) of this clause, provided that the Purchaser or Contractor identifies that data in writing at the time of delivery of the contract work.

(g) Unless FTA determines otherwise, the Contractor agrees to include these requirements in each subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance provided by FTA.

(3) Unless the Federal Government later makes a contrary determination in writing, irrespective of the Contractor's status (i.e., a large business, small business, state government or state instrumentality, local government, nonprofit organization, institution of higher education, individual, etc.), the Purchaser and the Contractor agree to take the necessary actions to provide, through FTA, those rights in that invention due the Federal Government as described in

U.S. Department of Commerce regulations, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," 37 C.F.R. Part 401.

(4) The Contractor also agrees to include these requirements in each subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance provided by FTA.

B. Patent Rights - The following requirements apply to each contract involving experimental, developmental, or research work:

(1) General - If any invention, improvement, or discovery is conceived or first actually reduced to practice in the course of or under the contract to which this Attachment has been added, and that invention, improvement, or discovery is patentable under the laws of the United States of America or any foreign country, the Purchaser and Contractor agree to take actions necessary to provide immediate notice and a detailed report to the party at a higher tier until FTA is ultimately notified.

(2) Unless the Federal Government later makes a contrary determination in writing, irrespective of the Contractor's status (a large business, small business, state government or state instrumentality, local government, nonprofit organization, institution of higher education, individual), the Purchaser and the Contractor agree to take the necessary actions to provide,

through FTA, those rights in that invention due the Federal Government as described in U.S. Department of Commerce regulations, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," 37 C.F.R. Part 401.

(3) The Contractor also agrees to include the requirements of this clause in each subcontract for experimental, developmental, or research work financed in whole or in part with Federal assistance provided by FTA.

27. TRANSIT EMPLOYEE PROTECTIVE AGREEMENTS

49 U.S.C. § 5310, § 5311, and § 5333

29 CFR Part 215

Applicability to Contracts

The Transit Employee Protective Provisions apply to each contract for transit operations performed by employees of a Contractor recognized by FTA to be a transit operator. (Because transit operations involve many activities apart from directly driving or operating transit vehicles, FTA determines which activities constitute transit "operations" for purposes of this clause.)

Flow Down

These provisions are applicable to all contracts and subcontracts at every tier.

Model Clause/Language

Since no mandatory language is specified, FTA had developed the following language:

Transit Employee Protective Provisions. (1) The Contractor agrees to the comply with applicable transit employee protective requirements as follows:

(a) General Transit Employee Protective Requirements - To the extent that FTA determines that transit operations are involved, the Contractor agrees to carry out the transit operations work on the underlying contract in compliance with terms and conditions determined by the U.S. Secretary of Labor to be fair and equitable to protect the interests of employees employed under this contract and to meet the employee protective requirements of 49 U.S.C. A 5333(b), and U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto. These terms and conditions are identified in the letter of certification from the U.S. DOL to FTA applicable to the FTA Recipient's project from which Federal assistance is provided to support work on the underlying contract. The Contractor agrees to carry out that work in compliance with the conditions stated in that U.S. DOL letter. The requirements of this subsection (1), however, do not apply to any contract financed with Federal assistance provided by FTA either for projects for elderly individuals and individuals with disabilities authorized by 49 U.S.C. § 5310(a)(2), or for projects for nonurbanized areas authorized by 49 U.S.C. § 5311. Alternate provisions for those projects are set forth in subsections (b) and (c) of this clause.

(b) Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. § 5310(a)(2) for Elderly Individuals and Individuals with Disabilities - If the contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. § 5310(a)(2), and if the U.S. Secretary of Transportation has determined or determines in the future that the employee protective requirements of 49 U.S.C. § 5333(b) are necessary or appropriate for the state and the public body subrecipient for which work is performed on the underlying contract, the Contractor agrees to carry out the Project in compliance with the terms and conditions determined by the U.S. Secretary of Labor to meet the requirements of 49 U.S.C. § 5333(b), U.S. DOL guidelines at 29 C.F.R. Part 215, and any amendments thereto. These terms and conditions are identified in the U.S. DOL's letter of certification to FTA, the date of which is set forth Grant Agreement or Cooperative Agreement with the state. The Contractor agrees to perform transit operations in connection with the underlying contract in compliance with the conditions stated in that U.S. DOL letter.

(c) Transit Employee Protective Requirements for Projects Authorized by 49 U.S.C. § 5311 in Nonurbanized Areas - If the contract involves transit operations financed in whole or in part with Federal assistance authorized by 49 U.S.C. § 5311, the Contractor agrees to comply with the terms and conditions of the Special Warranty for the Nonurbanized Area Program agreed to by the U.S. Secretaries of Transportation and Labor, dated May 31, 1979, and the procedures implemented by U.S. DOL or any revision thereto.

(2) The Contractor also agrees to include the any applicable requirements in each subcontract involving transit operations financed in whole or in part with Federal assistance provided by FTA.

28. DISADVANTAGED BUSINESS ENTERPRISE (DBE)

49 CFR Part 26

Background and Applicability

The newest version on the Department of Transportation's Disadvantaged Business Enterprise (DBE) program became effective July 16, 2003. The rule provides guidance to grantees on the use of overall and contract goals, requirement to include DBE provisions in subcontracts, evaluating DBE participation where specific contract goals have been set, reporting requirements, and replacement of DBE subcontractors. Additionally, the DBE program dictates payment terms and conditions (including limitations on retainage) applicable to all subcontractors regardless of whether they are DBE firms or not.

The DBE program applies to all DOT-assisted contracting activities. A formal clause such as that below must be included in all contracts above the micro-purchase level. The requirements of clause subsection b flow down to subcontracts.

A substantial change to the payment provisions in this newest version of Part 26 concerns retainage (*see* section 26.29). Grantee choices concerning retainage should be reflected in the language choices in clause subsection d.

Clause Language

The following clause language is suggested, not mandatory. It incorporates the payment terms and conditions applicable to all subcontractors based in Part 26 as well as those related only to DBE subcontractors. The suggested language allows for the options available to grantees concerning retainage, specific contract goals, and evaluation of DBE subcontracting participation when specific contract goals have been established.

Disadvantaged Business Enterprises

a. This contract is subject to the requirements of Title 49, Code of Federal Regulations, Part 26, *Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs*. The national goal for participation of Disadvantaged Business Enterprises (DBE) is 10%. The agency's overall goal for DBE participation is __ %. A separate contract goal [**of __ % DBE participation has**] [**has not**] been established for this procurement.

b. The contractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted contract. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as **{insert agency name}** deems appropriate. Each subcontract the contractor signs with a subcontractor must include the assurance in this paragraph (*see* 49 CFR 26.13(b)).

c. ***{If a separate contract goal has been established, use the following}*** Bidders/offerors are required to document sufficient DBE participation to meet these goals or, alternatively, document adequate good faith efforts to do so, as provided for in 49 CFR 26.53. Award of this contract is conditioned on submission of the following [**concurrent with and accompanying sealed bid**] [**concurrent with and accompanying an initial proposal**] [**prior to award**]:

1. The names and addresses of DBE firms that will participate in this contract;
2. A description of the work each DBE will perform;
3. The dollar amount of the participation of each DBE firm participating;
4. Written documentation of the bidder/offeror's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal;
5. Written confirmation from the DBE that it is participating in the contract as provided in the prime contractor's commitment; and

6. If the contract goal is not met, evidence of good faith efforts to do so.

[Bidders][Offerors] must present the information required above **[as a matter of responsiveness] [with initial proposals] [prior to contract award]** (see 49 CFR 26.53(3)). *{If no separate contract goal has been established, use the following}* The successful bidder/offeree will be required to report its DBE participation obtained through race-neutral means throughout the period of performance.

d. The contractor is required to pay its subcontractors performing work related to this contract for satisfactory performance of that work no later than 30 days after the contractor's receipt of payment for that work from the **{insert agency name}**. In addition, **[the contractor may not hold retainage from its subcontractors.] [is required to return any retainage payments to those subcontractors within 30 days after the subcontractor's work related to this contract is satisfactorily completed.] [is required to return any retainage payments to those subcontractors within 30 days after incremental acceptance of the subcontractor's work by the {insert agency name} and contractor's receipt of the partial retainage payment related to the subcontractor's work.]**

e. The contractor must promptly notify **{insert agency name}**, whenever a DBE subcontractor performing work related to this contract is terminated or fails to complete its work, and must make good faith efforts to engage another DBE subcontractor to perform at least the same amount of work. The contractor may not terminate any DBE subcontractor and perform that work through its own forces or those of an affiliate without prior written consent of **{insert agency name}**.

29. [RESERVED]

30. INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS **FTA Circular 4220.1E**

Applicability to Contracts

The incorporation of FTA terms applies to all contracts.

Flow Down

The incorporation of FTA terms has unlimited flow down.

Model Clause/Language

FTA has developed the following incorporation of terms language:

Incorporation of Federal Transit Administration (FTA) Terms - The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1E, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the

event of a conflict with other provisions contained in this Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any (name of grantee) requests which would cause (name of grantee) to be in violation of the FTA terms and conditions.

31. DRUG AND ALCOHOL TESTING

49 U.S.C. §5331

49 CFR Parts 653 and 654

Applicability to Contracts

The Drug and Alcohol testing provisions apply to Operational Service Contracts.

Flow Down Requirements

Anyone who performs a safety-sensitive function for the recipient or subrecipient is required to comply with 49 CFR 653 and 654, with certain exceptions for contracts involving maintenance services. Maintenance contractors for non-urbanized area formula program grantees are not subject to the rules. Also, the rules do not apply to maintenance subcontractors.

Model Clause/Language

Introduction

FTA's drug and alcohol rules, 49 CFR 653 and 654, respectively, are unique among the regulations issued by FTA. First, they require recipients to ensure that any entity performing a safety-sensitive function on the recipient's behalf (usually subrecipients and/or contractors) implement a complex drug and alcohol testing program that complies with Parts 653 and 654. Second, the rules condition the receipt of certain kinds of FTA funding on the recipient's compliance with the rules; thus, the recipient is not in compliance with the rules unless every entity that performs a safety-sensitive function on the recipient's behalf is in compliance with the rules. Third, the rules do not specify how a recipient ensures that its subrecipients and/or contractors comply with them.

How a recipient does so depends on several factors, including whether the contractor is covered independently by the drug and alcohol rules of another Department of Transportation operating administration, the nature of the relationship that the recipient has with the contractor, and the financial resources available to the recipient to oversee the contractor's drug and alcohol testing program. In short, there are a variety of ways a recipient can ensure that its subrecipients and contractors comply with the rules.

Therefore, FTA has developed three model contract provisions for recipients to use "as is" or to modify to fit their particular situations.

Explanation of Model Contract Clauses

Under Option 1, the recipient ensures the contractor's compliance with the rules by requiring the contractor to participate in a drug and alcohol program administered by the recipient. The advantages of doing this are obvious: the recipient maintains total control over its compliance with 49 CFR 653 and 654. The disadvantage is that the recipient, which may not directly employ any safety-sensitive employees, has to implement a complex testing program. Therefore,

this may be a practical option only for those recipients which have a testing program for their employees, and can add the contractor's safety-sensitive employees to that program.

Under Option 2, the recipient relies on the contractor to implement a drug and alcohol testing program that complies with 49 CFR 653 and 654, but retains the ability to monitor the contractor's testing program; thus, the recipient has less control over its compliance with the drug and alcohol testing rules than it does under option 1. The advantage of this approach is that it places the responsibility for complying with the rules on the entity that is actually performing the safety-sensitive function. Moreover, it reserves to the recipient the power to ensure that the contractor complies with the program. The disadvantage of Option 2 is that without adequate monitoring of the contractor's program, the recipient may find itself out of compliance with the rules.

Under option 3, the recipient specifies some or all of the specific features of a contractor's drug and alcohol compliance program. Thus, it requires the recipient to decide what it wants to do and how it wants to do it. The advantage of this option is that the recipient has more control over the contractor's drug and alcohol testing program, yet it is not actually administering the testing program. The disadvantage is that the recipient has to specify and understand clearly what it wants to do and why.

Drug and Alcohol Testing Option 1

The contractor agrees to:

(a) participate in (grantee's or recipient's) drug and alcohol program established in compliance with 49 CFR 653 and 654.

Drug and Alcohol Testing Option 2

The contractor agrees to establish and implement a drug and alcohol testing program that complies with 49 CFR Parts 653 and 654, produce any documentation necessary to establish its compliance with Parts 653 and 654, and permit any authorized representative of the United States Department of Transportation or its operating administrations, the State Oversight Agency of (name of State), or the (insert name of grantee), to inspect the facilities and records associated with the implementation of the drug and alcohol testing program as required under 49 CFR Parts 653 and 654 and review the testing process. The contractor agrees further to certify annually its compliance with Parts 653 and 654 before (insert date) and to submit the Management Information System (MIS) reports before (insert date before March 15) to (insert title and address of person responsible for receiving information). To certify compliance the contractor shall use the "Substance Abuse Certifications" in the "Annual List of Certifications and Assurances for Federal Transit Administration Grants and Cooperative Agreements," which is published annually in the Federal Register.

Drug and Alcohol Testing Option 3

The contractor agrees to establish and implement a drug and alcohol testing program that complies with 49 CFR Parts 653 and 654, produce any documentation necessary to establish its compliance with Parts 653 and 654, and permit any authorized representative of the United States Department of Transportation or its operating administrations, the State Oversight Agency of (name of State), or the (insert name of grantee), to inspect the facilities and records associated with the implementation of the drug and alcohol testing program as required under 49 CFR Parts 653 and 654 and review the testing process. The contractor agrees further to certify annually its compliance with Parts 653 and 654 before (insert date) and to submit the Management Information System (MIS) reports before (insert date before March 15) to (insert title and address of person responsible for receiving information). To certify compliance the contractor shall use the "Substance Abuse Certifications" in the "Annual List of Certifications and Assurances for Federal Transit Administration Grants and Cooperative Agreements," which is published annually in the Federal Register. The Contractor agrees further to [Select a, b, or c] (a) submit before (insert date or upon request) a copy of the Policy Statement developed to implement its drug and alcohol testing program; OR (b) adopt (insert title of the Policy Statement the recipient wishes the contractor to use) as its policy statement as required under 49 CFR 653 and 654; OR (c) submit for review and approval before (insert date or upon request) a copy of its Policy Statement developed to implement its drug and alcohol testing program. In addition, the contractor agrees to: (to be determined by the recipient, but may address areas such as: the selection of the certified laboratory, substance abuse professional, or Medical Review Officer, or the use of a consortium).

FEDERAL TRANSIT ADMINISTRATION

BEST PRACTICES PROCUREMENT MANUAL

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1. January 20, 2004: Performance and Payment Bonding Requirements

U.S. Department
of Transportation
**Federal Transit
Administration**

Administrator

400 Seventh St. S.W.
Washington, D.C. 20590

January 20, 2004

C-01-04

Dear Colleague:

In working with our grantees and their transit suppliers, we have found some misunderstanding about the Federal Transit Administration (FTA) requirements regarding performance and payment bonds in Federally-assisted procurements, particularly for rolling stock procurements. In short, FTA *does not require* bonding in any amount for rolling stock or any other non-construction contracts. FTA leaves to the good business judgment of our grantees the discretion to determine the appropriate amount of bonding — if any — to incorporate in non-construction contracts.

With APTA's assistance, FTA examined the prices rolling stock manufacturers pay for bonds and how those prices have reacted to changes in the broader bond market. We found wide variation in manufacturers' experiences overall, but a strong indication that rail car manufacturers have been particularly hard hit in terms of bond pricing and availability. Needless to say, high bond costs and reduced availability directly impact both the grantee's bottom line and competition within the industry. I challenge each of you to carefully assess the risks involved in any given procurement and carefully balance those risks against the cost and competitive impacts of bonding requirements. At FTA, we will continue to work with the industry to identify cost-effective ways to manage risks, and will share that information through our *Best Practices Procurement Manual*. Additionally, we will continue to work with both the public and private sectors to ensure our grantees have access to the information they need to make informed choices as they consider bonds in their procurement practices.

Even in the area of construction contracts (where bonding is an FTA requirement), we remain willing to review and approve sensible alternatives and exceptions to the bonding levels identified as adequate to protect the Federal interest in FTA Circular 4220.1E. The Circular notes that "a Grantee may seek FTA approval of its bonding policy and requirements if they do not comply with these criteria," and FTA has approved exceptions to the circular requirements.

As responsible stewards of our public resources, it is incumbent upon each of us to maximize the benefits generated by every transit dollar. Please review your bonding practices to ensure that

you are prudently utilizing this important tool. I look forward to sharing the sound and innovative practices that the transit industry always generates.

Sincerely,

A handwritten signature in red ink, appearing to read "jldorn", with a stylized flourish at the end.

Jennifer L. Dorn

2. May 29, 2002: Policy Changes and Clarifications re: Procurement Transactions

U.S. Department
of Transportation
**Federal Transit
Administration**

Administrator

400 Seventh St. S.W.
Washington, D.C. 20590

May 29, 2002

C-08-02

Dear Colleague:

I am pleased to announce a number of Federal Transit Administration (FTA) policy changes and clarifications that we believe will simplify your procurement transactions, as well as several initiatives intended to identify and share successful procurement practices. The changes and clarifications involve:

- " Rescission of five-year contract term limitations;
- " Use of E-commerce for procurements;
- " Rules on advance payments; and
- " The effect of using of various FTA funding sources for operating and preventive maintenance contracts.

In addition, you will find information on a new Best Practices initiative, as well as the introduction of the Experimental Procurement Laboratory initiative. Through these initiatives, we hope to persuade you to share what works well and encourage new thinking about how procurement practices can be simplified and improved.

This information will also be made available on the FTA public website, and I encourage you to share it with your procurement staff. I also want to thank the many transit agencies that have offered comments on how to improve procurement practices, and particularly those who responded to our recent survey.

POLICY CHANGES AND CLARIFICATIONS**A. FTA C 4220.1D, Paragraph 7(m) -- Contract Term Limitation**

The five-year contract term limitation for FTA-funded contracts, including "revenue contracts," awarded by grant recipients is hereby rescinded. Revenue contracts are those that utilize FTA-funded real estate, equipment and facilities to generate revenue. With this rescission, grant recipients no longer need to obtain FTA approval for contract terms exceeding five years. Please

note, however, that contracts for rolling stock and replacement parts are still limited to not more than five years, as required by statute. (49 United States Code Section 5326(b))

Grantees are expected to continue to be judicious in establishing and extending their contract terms. Good procurement practice dictates that grantees enter into contract terms no longer than minimally necessary to accomplish the purpose of the contract.

B. E-Commerce

E-Commerce has been and continues to be an allowable means to conduct procurements. If a grantee chooses to utilize E-Commerce, written procedures must be developed and all requirements for full and open competition must be met.

C. FTA C4220.1D, Paragraph 12.a. -- Advance Payments

There continues to be some confusion about FTA policy with respect to advance payments, stemming from the interpretation of American Public Transportation Association's Standard Bus Procurement Guidelines and subsequent FTA Dear Colleague Letters. The clarification of requirements regarding advance payments provided in the Dear Colleague Letter of June 15, 2001, remains accurate, but is further clarified as follows:

FTA C 4220.1D, Paragraph 12, "Payment Provision in Third Party Contracts," states: "FTA does not authorize and will not participate in funding payments to a contractor prior to the incurrence of costs by the contractor unless prior written concurrence is obtained from FTA." This policy remains unchanged: FTA funds may not be used to make advance payments unless prior written concurrence is obtained from FTA. There is no prohibition on a grant recipient's use of local funds for advance payments. However, advance payments made with local funds before a grant has been awarded, or before the issuance of a letter of no prejudice or other pre-award authority, are ineligible for reimbursement.

D. FTA C 4220.1D, Paragraph 4 – Applicability (Regarding Operating Assistance and Preventive Maintenance)

FTA grant recipients who utilize FTA formula funds for operating assistance are required to follow the requirements of the FTA C 4220.1D for all operating contracts. Since FTA formula funds pay a percentage of the net operating deficit, such contracts cannot be segregated and FTA C 4220.1D must be applied.

Congestion Mitigation and Air Quality (CMAQ) and Job Access/Reverse Commute (JARC) project funds may be used for operations. Grantees must follow the Circular requirements for any specific contracts that utilize CMAQ or JARC funds. However, the use of CMAQ and JARC funds for operations does not trigger the applicability of the Circular to all other operating contracts.

Grantees who utilize formula capital funds for preventive maintenance contracts are subject to the following requirements under the Circular. If the FTA formula funds are allocated to discrete contracts identified in the grant application for preventive maintenance, then FTA C 4220.1D will apply only to those specific contracts. If the FTA formula funds are not allocated to discrete contracts in the grant application, then all preventive maintenance contracts are subject to the requirements of the Circular.

BEST PRACTICES INITIATIVES

A. Best Practices Contest

While the Best Practices Procurement Manual (BPPM) contains some excellent examples of grantee "best practices," we are eager to encourage the sharing of many more of these practical ideas among grantees. Everyone who submits a best practice that is incorporated into the Manual will be publicly recognized at American Public Transit Association's Annual Meeting. In addition, one individual/agency will be recognized at the annual Awards Ceremony, and APTA will waive the conference registration fee for the person who submits the winning "best practice."

B. Experimental Procurement Laboratory

FTA also is creating an experimental "procurement laboratory." The goal of this initiative is to allow and encourage grantees to improve or streamline their contracting processes through innovative approaches. Grantees are invited to propose procurement innovations for consideration and approval by FTA. If the experiment is successful, the practice will be published in the Best Practices Procurement Manual.

More information about the Best Practices Contest and the Experimental Procurement Laboratory initiative will be published soon on the FTA website, the BPPM website, and the APTA website, and will be made available at FTA conferences and National Transit Institute procurement courses.

I appreciate your continued support, and look forward to working with you to further improve procurement practices in the transportation industry. Regional Office.

Sincerely,



Jennifer L. Dorn

3. June 15, 2001: Feedback on the Effectiveness of FTA's Third Party Contracting Requirements and Procurement Assistance Program



U.S. Department
Of Transportation
**Federal Transit
Administration**

Deputy Administrator

400 Seventh St. S.W.
Washington, D.C. 20590

C-08-01

June 15, 2001

Dear Colleague:

In May 1999, the Federal Transit Administration (FTA) issued a survey inviting feedback on the effectiveness of FTA's Third Party Contracting Requirements and Procurement Assistance Program. Based on comments and suggestions in the survey responses, FTA implemented certain changes to these two areas of our program. These changes include offering an increased number and variety of procurement courses; adding to and refining the "Best Practices Procurement Manual;" and posting procurement questions and answers on the Internet.

During a workshop held on May 9, 2001, at the American Public Transportation Association (APTA) Bus and Paratransit Conference in Calgary, Canada, FTA provided an update on the actions it has undertaken. The participants felt it was necessary to work collaboratively to address the 5-year term limitation issue at a workshop dedicated solely to this topic at the Fall APTA Bus Equipment and Maintenance/Procurement and Materials Management Conference in Ft. Worth, Texas. Both FTA and APTA agreed to this recommendation.

It was also agreed that in the interim, FTA would exempt certain classes of contracts from the requirement to obtain prior FTA approval for periods of performance in excess of a 5-year term, and that FTA would clarify other areas of Circular 4220.1D, "FTA Third Party Contracting Requirements," that the survey revealed were in need of further clarification.

A. FTA Circular 4220.1D, Paragraph 7(m) – Contract Period of Performance Limitation

Paragraph 7(m) states, "grantees shall not enter into either service or supply contracts with a period of performance exceeding five years inclusive of options without prior written FTA approval. A maximum of five years' requirements may be acquired under a single contract without prior FTA approval (including rolling stock), even though delivery may occur beyond five years after the date of contract award. FTA approval is required for contract extensions or renewals beyond a five-year term. This limitation does not apply to construction contracts or to leases of real property for the life of a transit asset to be constructed on such property (which

period will extend beyond five years in order to fulfill the statutory requirements that grantees have ‘satisfactory continuing control.’)”

Further, a blanket waiver is granted to exempt the following class of contracts from the requirement to obtain FTA prior approval for a contract term in excess of five years:

Non-construction related contracts such as proprietary software maintenance, consulting and other professional services contracts (except contracts for general engineering services) awarded for a discrete, identifiable item, e.g., a particular piece of litigation, a discrete tort claim, and audit of a particular transaction or fiscal year.

This blanket waiver, however, does not cover the following class:

All contracts for general engineering consultant services are non-exempt. Task order type arrangements for engineering, architectural, legal, accounting, non-proprietary software maintenance or other professional services not tied directly to a related construction contract or a discrete identifiable item, require prior FTA approval for periods of performance in excess of five years.

B. Revenue Contracts – Five-Year Term Limitation

It is FTA’s policy that all persons be afforded an equal opportunity to benefit from business opportunities arising from use of FTA-funded assets. It is also FTA’s policy to encourage FTA recipients to maximize non-farebox revenues through contractual and other appropriate arrangements involving non-interfering uses of such FTA-funded assets. The establishment of a five-year contract term limitation is one means by which FTA seeks to balance these potentially conflicting policies. A review of recent requests for exemption from the 5-year limitation in the area of "revenue contracts," however, suggests that prior FTA approval is not required under certain conditions. Accordingly, prior FTA approval of the following categories of "revenue contracts" in excess of five years is no longer required:

- 1). Non-exclusive revenue contracts: Revenue contracts involving business opportunities, that due to their nature and the capacity of the transit system, are not limited by physical constraints or grantee policy to any specific number of entrants do not require prior FTA approval. For example, if a grantee allows any vendor to install fiber optic cable within the grantee’s right-of-way on reasonable terms and conditions, until such time as the grantee decides to limit the number of entrants due to capacity of the system or other factors, there is no need for prior FTA review. Another example might be allowing multiple vendors to put transmission towers or antennas on grantee property.
- 2). Exclusive revenue contracts under certain conditions: Revenue contracts involving business opportunities due to their nature and the capacity of the transit system which are limited to a specific number of entrants, whether due to physical constraints or grantee policy, do not require prior FTA approval where the following conditions exist and are documented in the grantee’s files:

- a). Contracts are awarded through a competitive process;
- b). Economic analysis shows that a contract term longer than five years is necessary to allow the contractor to recover any required capital investment and a reasonable return on investment taking into account both tax (depreciation) and economic/business considerations.

3). Transit Oriented/Joint Development Revenue Contracts. Transit Oriented Developments and Joint Development projects undertaken in conformance with FTA joint development policies may subsequently give rise to revenue contracts. Prior FTA concurrence in a contract term in excess of five years is governed by the same criteria as described in paragraphs 1) and 2) above. Note that FTA routine oversight and concurrence in transit oriented development and joint development projects remains unchanged by this exemption.

C. FTA Circular 4220.1D, Paragraph 12 - Payment Provisions in Third Party Contracts

The survey results indicated that there is some confusion concerning the use of advance payments. With regard to advance payments, the Circular states, "FTA does not authorize and will not participate in funding payments to a contractor prior to the incurrence of costs by the contractor unless prior written concurrence is obtained from FTA." This policy is unchanged. To clarify, however, there is no prohibition on a Grantee's using local funds for advance payments where a grant has been awarded or the project is covered by a letter of no prejudice, or other pre-award authority. Please note that advance payments made before a grant has been awarded or before the project is covered by a letter of no prejudice or other pre-award authority, will be ineligible for reimbursement.

D. Preventive Maintenance

Preventive maintenance is an eligible expense under FTA's capital and operating assistance programs depending upon the size of the population served by the grantee. Grantees have asked how the requirements of FTA Circular 4220.1D apply when preventive maintenance activities are contracted to third parties under a capital assistance program rather than an operating assistance program. The question arises because of the different treatment of capital and operating contracts by the Circular in accordance with applicable law. There are two options. Under the capital assistance program, the grantee may apply the Circular only to the specific preventive maintenance contracts identified in the grant application, but not others. Alternatively, the grantee may elect to receive preventive maintenance funds as a certain percentage of total maintenance costs. Under this alternative, the requirements of the Circular apply across the board to all of the grantee's maintenance contracts. Please note that under the latter option, grantees may not selectively exclude certain maintenance contracts from the total operations amount on which they base their percentage calculation.

All of the changes reflected in this "Dear Colleague" letter are effective immediately.

FTA does appreciate your feedback. Please continue to give us your suggestions for improving our procurement program.

Sincerely,
Signed
Hiram J. Walker
Acting Deputy Administrator

4. December 21, 1998: Joint Procurements, Y2K Compliance Requirements

U.S. Department
Of Transportation
**Federal Transit
Administration**

The Administrator

400 Seventh St. S.W.
Washington, D.C. 20590

C-98-39

December 21, 1998

Dear Colleague:

Recently, there have been several requests for more insight and guidance on the Federal Transit Administration's (FTA) policy and philosophy on various aspects of procurement, and specifically on the use of different strategies and approaches in fulfilling Year 2000 (Y2K) compliance requirements. The minimum requirements applicable to FTA funded procurements are set forth in FTA Circular 4220.1D, "Third Party Contracting Guidelines." The Circular has been designed to provide grant recipients maximum flexibility to operate within the framework of the minimum requirements.

In keeping with the discretionary powers and authority which are vested in grant recipients through the Circular, the FTA fully supports the use of creative and innovative procurement techniques and strategies. Grant recipients may utilize these tools to procure their actual needs and for the purpose of leveraging bargaining power, achieving economies-of-scale and/or fulfilling Y2K compliance requirements. Further, recipients are afforded the freedom to collaborate and to partner with each other in order to facilitate and to maximize the use of innovative procurement techniques. This includes, but is not limited to, conducting joint procurements; proceeding with awards that result from proper "piggybacking" transactions; and/or developing standard specifications for consolidated purchases to address common needs for equipment and services such as escalators, Y2K technology, hardware and software. FTA recently clarified its position on "piggybacking" and "tag-one" in a "Dear Colleague" letter dated October 1, 1998, a copy of which is attached. Presently, that policy applies to rolling stock procurements only; however, consideration is being given to expanding the policy to cover other procurements in the near future.


Joint procurements may be conducted on a regional, statewide or national basis pursuant to the needs and applicable regulatory and statutory requirements of the parties to the procurement. The FTA has specifically encouraged the use of joint procurements for rolling stock. Guidance on innovative procurement techniques, such as joint procurements, will be covered in the next issue of the "Best Practices Procurement Manual" (BPPM). Currently, the BPPM contains an example

of a statewide acquisition of buses which was provided by the New York Department of Transportation to facilitate and to assist others in use of the joint procurement concept.

Regardless of the procurement methodology or strategy chosen, the controlling requirement is that FTA funded procurements must conform to the requirements of FTA Circular 4220.ID. The guiding principle of the Circular is that procurements must be conducted in a manner that provides for full and open competition. However, this does not preclude the award of contracts on a non-competitive basis when supported by sound reasons documented in the recipients' files. For example, sound reasons may exist to either conduct a limited competition among a few known sources or to make award to a single source on a noncompetitive basis in order to fulfill the Y2K compliance requirements. Specifically, the award of a noncompetitive contract to address a Y2K problem would be permissible if circumstances existed where time is of the essence to avoid creating a safety hazard in the operation of your transit system.

Should you have questions or desire assistance in addressing procurement issues relating to fulfilling Y2K compliance requirements, please contact your respective FTA Regional Office.

Sincerely,

A handwritten signature in cursive script that reads "Gordon J. Linton". The signature is written in black ink and is positioned centrally below the word "Sincerely,".

Gordon J. Linton

5. October 1, 1998: Revenue Contracts, Piggybacking, Tag-ons

U.S. Department
Of Transportation
**Federal Transit
Administration**

The Administrator

400 Seventh St. S.W.
Washington, D.C. 20590

C-98-25

October 1, 1998

Dear Colleague:

I am pleased to announce the procurement initiatives underway in the Federal Transit Administration (FTA) and to provide recent FTA policy on some key areas which will impact your procurement transactions.

First, the FTA has initiated steps to conduct a survey of its customers whose operations and business transactions are impacted by the FTA Circular 4220.ID, Third Party Contracting Requirements. As you may recall, the circular, as amended, was issued on October 1, 1995. The circular was well received, and the feedback has been consistently favorable. However, as we strive to enhance customer satisfaction through the continuous improvement in the delivery of services, the survey will enable us to measure the degree to which the needs of our grantees and industry have been met.

Second, the FTA plans to issue the Third Party Contracting Requirements as a formal rule following a Notice of Proposed Rule Making (NPRM). The NPRM will afford both grantees and industry representatives the opportunity to partner with the FTA through the exchange of ideas and recommendations to influence and shape the final rule.

Third, in response to numerous requests for FTA policy and guidance in some key areas, the following policy-and guidance is effective immediately relating to transactions in the categories identified:

1. "Tag-ons" are not permitted. This term is defined as the adding on to the contracted quantities (base and option) as originally advertised, competed, and awarded, whether for the use of the buyer or for others and then treating the add-on portion as though it met the requirement of competition.
2. The term "piggybacking" is defined as the post-award use of a contractual document/process that allows someone who was not contemplated in the original procurement to purchase the same supplies or equipment through the original document/process.

Piggybacking is permissible when: (a) the solicitation document and the resultant

contract contain an assignability clause that provides for the assignment of all or part of the specified deliverables as originally advertised, competed, evaluated, and awarded. This includes the base and option quantities. In addition, the original solicitation and resultant contract must contain both a minimum and a maximum quantity, which represent the reasonably foreseeable needs of the parties to the solicitation.

3. Revenue contracts are defined as third party contracts whose primary purpose is to either generate revenues in connection with a transit related activity, or to create business opportunities utilizing an FTA funded asset. FTA requires that these contracts be awarded utilizing competitive selection procedures and principles. The extent of and type of competition required is within the discretionary judgment of the grantee. In addition, FTA requires that the contract term be limited to a period of 5 years, except in those instances where FTA has waived this requirement. Requests for waivers from the term limitation may be submitted to your Regional Office. In those situations where FTA may provide prior approval on a project (e.g., Transit Oriented Development projects, Cross Border leases) the waiver for a revenue contract in excess of five years may be obtained as part of the initial FTA approval of the project.

Guidance on each of these procurement categories will be published in the Best Practices Procurement Manual within the next few months.

Finally, the Office of Federal Procurement Policy is currently re-examining the procurement requirements in the Common Grant Rules which form the basis for the requirements contained in 4220.ID. If you wish to suggest ideas or changes to the Common Grant Rules, please contact the Office of Acquisition and Grant Management, Office of the Secretary at the address below or call area code (202) 366-4289.

Mr. Robert G. Taylor
Chief, Grants Management Division, M-60
Office of the Secretary of Transportation
Washington, DC 20590

I look forward to your continued support and invaluable contributions toward these efforts.

Sincerely,



Gordon J. Linton

6. September 4, 1998: APTA's Standard Bus Procurement Guidelines



U.S. Department
Of Transportation
**Federal Transit
Administration**

The Administrator

400 Seventh St. S.W.
Washington, D.C. 20590

C-98-16

September 4, 1998

Dear Colleague:

With the Publication of the Standard Bus Procurement Guidelines (SBPG), I issued a letter pronouncing my support of the collaborative efforts of the American Public Transit Association (APTA) and the Federal Transit Administration (FTA). In that letter I assured APTA members that any FTA funded procurement in conformance with the Phase I guidelines would be deemed to comply with FTA's third party procurement guidelines with respect to the areas addressed.

Recently, it has come to my attention that my letter has created some confusion regarding its application and impact on the requirements of third party contracting set forth in the FTA Circular 4220.ID. To clarify this issue, I wish to reiterate that the requirements for FTA funded procurements are covered in FTA Circular 4220.ID. I strongly urge grantees desiring to conduct FTA funded bus procurements utilizing the SBPG to ensure there are no conflicts with the FTA circular. Should clarification be required, grantees should contact their appropriate FTA regional office for guidance.

In closing, I hope this clarifies any confusion relating to FTA procurement requirements, and I offer my continued support to this effort and those in the future.

Sincerely,

Gordon J. Linton

7. March 18, 1997: Buy America Requirements of Pre-Award and Post-Delivery



U.S. Department
Of Transportation
**Federal Transit
Administration**

The Administrator

400 Seventh St. S.W.
Washington, D.C. 20590

C-97-03

March 18, 1997

Dear Colleague:

A Buy America problem and follow-up surveys of several Pre-Award and Post-Delivery Reviews of bus procurements indicates that many grantees and their contractors are not conducting adequate reviews of the Buy America requirements. The Pre-Award and Post-Delivery Reviews are designed to ensure that any vehicle purchased with Federal Transit Administration funds has at least a 60 percent domestic content and undergoes final assembly in the United States.

In general, we have found that, particularly in the case of final assembly activities, the grantees surveyed did not provide a description of the manufacturer's final assembly activities and an evaluation of whether Buy America requirements were met. When a grantee receives information from a manufacturer, it must review this information to determine whether it is sufficient to determine if the manufacturer has met the Buy America requirements. If the information is insufficient, the grantee must take whatever steps are necessary to satisfy itself that the manufacturer is complying with the Buy America requirements. This will usually involve seeking additional information from the manufacturer. Otherwise, the grantee certifies compliance with Buy America at its own risk.

In order to assist you in conducting reviews in accordance with the Pre-Award and Post-Delivery Review Regulation, 49 CFR Part 663, I have outlined in the enclosure the procedures a grantee must use to ensure that any vehicles it purchases comply with Buy America. If you have any questions regarding Buy America compliance, please contact your Regional Office.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gordon J. Linton".

Gordon J. Linton

Enclosure

**FEDERAL TRANSIT ADMINISTRATION
GUIDANCE ON BUY AMERICA REQUIREMENTS OF THE PRE-AWARD AND
POST-DELIVERY REVIEWS**

This guidance only addresses the Buy America requirements of the Pre-Award and Post-Delivery Reviews. The Purchaser's Requirements and the Federal Motor Vehicle Safety Standards requirements must still be met.

I. Pre-Award Review (before contract award)

Review data and information on Buy America compliance submitted by the manufacturer, including

Proposed domestic content of vehicle components to determine that the 60 percent United States content requirement is met;

- Proposed final assembly location; and
- Manufacturing activities that will take place during final assembly.

The manufacturer should provide enough detail about these activities to allow for the determination that these activities would constitute adequate final assembly under Buy America requirements. If the manufacturer does not provide sufficient information, the grantee must seek additional information. If the grantee determines that the activities are not adequate, the manufacturer must be asked to submit a revised manufacturing plan. A contract may not be awarded until the grantee is assured that the Buy America requirements will be met.

Final assembly is defined in 49 CFR Part 661 Buy America Requirements; Final Rule as "the creation of the end product from different elements brought together for that purpose through the application of manufacturing processes." In the case of the manufacture of a new rail car, final assembly would typically include, as a minimum, the following operations: installation and interconnection of propulsion control equipment, propulsion cooling equipment, brake equipment, energy sources for auxiliaries and controls, heating and air conditioning, communications equipment, motors, wheels and axles, suspensions and frames; the inspection and verification of all installation and interconnection work; and the in-plant testing of the stationary product to verify all functions. In the case of a new bus, final assembly would typically include, at a minimum, the installation and interconnection of the engine, transmission, axles, including the cooling and braking systems; the installation and interconnection of the heating and air conditioning equipment; the installation of pneumatic and electrical systems, door systems, passenger seats, passenger grab rails, destination signs, wheelchair lifts; and road testing, final inspection, repairs and preparation of the vehicles for delivery.

If a manufacturer's final assembly processes do not include all the activities that are

typically considered the minimum requirements, it can request a Federal Transit Administration (FTA) determination of compliance. FTA will review these requests on a case-by-case basis to determine compliance with Buy America.

The information reviewed supports a Pre-Award Buy America Certification that the proposed procurement meets the domestic content, the final assembly location and final assembly activities requirements.

II. Post-Delivery Review Requirements (during and after manufacturing)

The grantee is required to:

- Review actual component content to ensure that the vehicle meets the 60 percent Buy America domestic content requirement;
- Check that the final assembly location is in the United States and the manufacturer's final assembly activities meet the requirements outlined in paragraph I above; and
- Have an on-site inspector for rail car procurements and bus procurements of greater than 10 vehicles.

The inspector must verify that the actual manufacturing processes are consistent with the information provided by the manufacturer or with the grantee's own assessments. The post-delivery reviews verifies a grantee's Post-Delivery Buy America Certification that the domestic content, final assembly location and final assembly activities requirements are met. Any questions or uncertainties concerning these activities should be referred immediately to FTA.

APPENDIX B.1

EXAMPLE EVALUATION PROCESS

Excerpt from the American Public Transit Association

Standard Bus Procurement Guidelines

Draft as of 9/20/96

1.1.4 PROPOSAL EVALUATION, NEGOTIATION AND SELECTION

Proposals will be evaluated, negotiated, selected and any award made in accordance with the criteria and procedures described below. The approach and procedures are those which are applicable to a competitive negotiated procurement whereby proposals are evaluated to determine which proposals are within a competitive range. Discussions and negotiations may then be carried out with Offerors within the competitive range, after which Best and Final Offers (BAFOs) may be requested. However, the Procuring Agency may select a proposal for award without any discussions or negotiations or request for any BAFO(s). Subject to the Procuring Agency's right to reject any or all proposals, the Offeror will be selected whose proposal is found to be most advantageous to the Procuring Agency, based upon consideration of the criteria of "Qualification Requirements" (Section 1.1.4.3.1) and "Proposal Evaluation Criteria" (Section 1.1.4.3.2) below.

1.1.4.1 Opening of Proposals

Proposals will not be publicly opened. All proposals and evaluations will be kept strictly confidential throughout the evaluation, negotiation and selection process. Only the members of the Selection Committee and Evaluation Team and other Procuring Agency officials, employees and agents having a legitimate interest will be provided access to the proposals and evaluation results during this period.

1.1.4.2 Selection Committee and Evaluation Team

(NOTE: Procuring Agency to specify how it will organize the evaluation and appropriately title this section. The following is provided as an example.)

A Selection Committee will be established. The Committee will make all decisions regarding the evaluations, determination of responsible Offerors and the competitive range, negotiations and the selection of the Offeror, if any, that may be awarded the Contract. The Selection Committee will be assisted by an Evaluation Team which will include officers, employees and agents of the Procuring Agency. The Evaluation Team will carry out the detailed evaluations and report all of its findings to the Selection Committee.

1.1.4.3 Proposal Selection Process

The following describes the process by which proposals will be evaluated and a selection made for a potential award. Any such selection of a proposal by a responsible Offeror shall be made by consideration of only the criteria of "Qualification Requirements" (Section 1.1.4.3.1) and "Proposal Evaluation Criteria" (Section 1.1.4.3.2) below. Section 1.1.4.3.1 specifies the requirements for determining responsible Offerors, all of which must be met by an Offeror to be found qualified. Final determination of an Offeror's qualification will be made based upon all information received during the evaluation process and as a condition for award. Section 1.1.4.3.2 contains all of the evaluation criteria, and their relative order of importance, by which a proposal from a qualified Offeror will be considered for selection. An award, if made, will be to a responsible Offeror for a proposal which is found to be in the Procuring Agency's best interest, price and other evaluation criteria considered.

The procedures to be followed for these evaluations are provided in "Evaluation Procedures" (Section 1.1.4.4) below.

1.1.4.3.1 Qualification Requirements

The following are the requirements for qualifying responsible Offerors. All of these requirements must be met; therefore, they are not listed by any particular order of importance. The Offeror of any proposal that the Selection Committee finds not to meet these requirements, and cannot be made to meet these requirements, may be determined by the Selection Committee not to be responsible and its proposal rejected. The requirements are as follows:

(NOTE: Requirements shown in italics are examples to serve as guidelines. The Procuring Agency is to choose and specify the appropriate requirements.)

- I. Sufficient financial strength and resources and capability to finance the work to be performed and complete the Contract in a satisfactory manner as measured by:
 - A. Offeror's financial statements prepared in accordance with United States Generally Accepted Accounting Principles (GAAP) and audited by an independent certified public accountant authorized to practice in the jurisdiction of either the Procuring Agency or the Offeror. *(NOTE: Procuring Agency to determine any minimum requirements for equity, working capital, debt, etc. For example where it would be possible to establish some minimum numerical values for equity, debt to assets ratio, etc. as a screening mechanism, this should be done on an approximate basis to avoid having to rule out an otherwise viable Offeror which is just below a rigid minimum. Whatever measures are established should be consistent with what the financial strength needs are for the project. Here it is only important to determine if the Offeror will have sufficient financial strength to pay its bills on time, fund the cash flow, and meet obligations to subcontractors. The evaluation of financial strength should take into account the Offeror's other contractual commitments)*
 - B. *(NOTE: If performance bonding is specified as an alternative to or together with other financial qualifications and assurances)* Ability to secure required bond(s)

- as evidenced by a letter of commitment from an underwriter confirming that the Offeror can be bonded for the required amount.
- C. Willingness of any parent company to provide the required financial guaranty evidenced by a letter of commitment signed by an officer of the parent company having the authority to execute the parent company guaranty. *(NOTE: If the Offeror is a subsidiary(ies) of another company(ies) or is a joint venture, guaranties from the parents and/or corporate members of the joint venture should be required. Language can be stipulated by the Procuring Agency to assure that the guaranty is effective.)*
 - D. Ability to obtain required insurance with coverage values that meet minimum requirements evidenced by a letter from an underwriter confirming that the Offeror can be insured for the required amount.
- II. Evidence that the human and physical resources are sufficient to perform the contract as specified and assure delivery of all equipment within the time specified in the Contract, to include:
- A. Engineering, management and service organizations with sufficient personnel and requisite disciplines, licenses, skills, experience, and equipment to complete the Contract as required and satisfy any engineering or service problems that may arise during the warranty period.
 - B. Adequate manufacturing facilities sufficient to produce and factory-test equipment on schedule.
 - C. A spare parts procurement and distribution system sufficient to support equipment maintenance without delays and a service organization with skills, experience, and equipment sufficient to perform all warranty and on-site work.
- III. Evidence that Offeror is qualified in accordance with Part 4: Quality Assurance Provisions.
- IV. Evidence of satisfactory performance and integrity on contracts in making deliveries on time, meeting specifications and warranty provisions, parts availability, and steps Offeror took to resolve any judgments, liens, fleet defects history, and warranty claims. Evidence shall be by client references.

1.1.4.3.2 Proposal Evaluation Criteria

The following are the complete criteria, listed by their relative degree of importance, by which proposals from responsible Offerors will be evaluated and ranked for the purposes of determining any competitive range and to make any selection of a proposal for a potential award. Any exceptions, conditions, reservations or understandings explicitly, fully and separately stated on the "Form for Proposal Deviation (Section 1.1.6.9) which do not cause the Procuring Agency to consider a proposal to be outside the competitive range, will be evaluated according to the respective evaluation criteria and/or sub-criteria which they affect.

The criteria are listed numerically by their relative order of importance. However, certain criteria may have sub-criteria that are listed by their relative order of importance within the specific criterion they comprise. Also, certain sub-criteria may have sub-criteria that are listed by their relative degree of importance within the specific sub-criterion they comprise.

(NOTE: Procuring Agency to define and insert the evaluation criteria. At the option of the Procuring Agency weights should be assigned to each criterion and sub-criterion and shown in the document. The criteria are to be listed by their order of importance in the evaluation. The following are suggested categories of criteria for Procuring Agency consideration, but not listed in suggested order of importance:

Technical

Qualifications and Resources

Management

Price

Other Financial Impacts

Example evaluation criteria are presented in Appendix at the end of this Section 1.)

1.1.4.4 Evaluation Procedures

All aspects of the evaluations of the proposals and any discussions/negotiations, including documentation, correspondence and meetings, will be kept confidential during the evaluation and negotiation process.

Proposals will be analyzed for conformance with the instructions and requirements of the RFP and Contract documents. Proposals that do not comply with these instructions and do not include the required information may be rejected as insufficient or not be considered for the competitive range. Procuring Agency reserves the right to request an Offeror to provide any missing information and to make corrections. Offerors are advised that the detailed evaluation forms and procedures will follow the same proposal format and organization specified in "Instructions to Offerors" (Section 1.1.3). Therefore, Offerors shall pay close attention to and strictly follow all instructions. Submittal of a proposal will signify that the Offeror has accepted the whole of the Contract documents, except such conditions, exceptions, reservations or understandings explicitly, fully and separately stated on the forms and according to the instructions of "Form for Proposal Deviation." Any such conditions, exceptions, reservations or understandings which do not result in the rejection of the proposal are subject to evaluation under the criteria of "Proposal Evaluation Criteria" (Section 1.1.4.3.2).

Evaluations will be made in strict accordance with all of the evaluation criteria and procedures specified in "Proposal Selection Process" (Section 1.1.4.3). The Procuring Agency will select for any award the highest ranked proposal from a responsible Offeror, qualified under "Qualification Requirements" (Section 1.1.4.3.1) which does not render this procurement financially infeasible and is judged to be most advantageous to the Procuring Agency based on consideration of the evaluation "Proposal Evaluation Criteria" (Section 1.1.4.3.2).

1.1.4.4.1 Evaluations of Competitive Proposals

- I. Qualification of Responsible Offerors.** Proposals will be evaluated in accordance with requirements of "Qualification Requirements" (Section 1.1.4.3.1) to determine the responsibility of Offerors. Any proposals from Offerors whom the Procuring Agency finds not to be responsible and finds cannot be made to be responsible may not be considered for the competitive range. Final determination of an Offeror's responsibility will be made upon the basis of initial information submitted in the proposal, any information submitted upon request by the Procuring Agency, information submitted in a BAFO and information resulting from Procuring Agency inquiry of Offeror's references and its own knowledge of the Offeror.
- II. Detailed Evaluation of Proposals and Determination of Competitive Range.** Each proposal will be evaluated in accordance with the requirements and criteria specified in "Proposal Selection Process" (Section 1.1.4.3).

The following are the minimum requirements that must be met for a proposal to be considered for the competitive range. All of these requirements must be met; therefore, they are not listed by any particular order of importance. Any proposal that the Procuring Agency finds not to meet these requirements, and may not be made to meet these requirements, may be determined by the Procuring Agency to not be considered for the competitive range. The requirements are as follows:

- A. Offeror is initially evaluated as responsible in accordance with the requirements of "Qualification Requirements" (Section 1.1.4.3.1), or that the Procuring Agency finds it is reasonable that said proposal can be modified to meet said requirements. Final determination of responsibility will be made with final evaluations.
- B. Offeror has followed the instructions of the RFP and included sufficient detail information, such that the proposal can be evaluated. Any deficiencies in this regard must be determined by the Procuring Agency to be either a defect that the Procuring Agency will waive in accordance with "Acceptance/Rejection of Proposals" (Section 1.1.5.1) or that the proposal can be sufficiently modified to meet these requirements.
- C. Proposal price would not render this procurement financially infeasible, or it is reasonable that such proposal price might be reduced to render the procurement financially feasible.

The Procuring Agency will carry out and document its evaluations in accordance with the criteria and procedures of "Proposal Selection Process" (Section 1.1.4.3). Any extreme proposal deficiencies which may render a proposal unacceptable will be documented. The Procuring Agency will make specific note of questions, issues, concerns and areas requiring clarification by Offerors and to be discussed in any meetings with Offerors which the Procuring Agency finds to be within the competitive range.

Rankings and spreads of the proposals against the evaluation criteria will then be made by the Procuring Agency as a means of judging the overall relative spread between proposals and of determining which proposals are within the competitive range, or may be reasonably made to be within the competitive range.

III. Proposals not within the Competitive Range. Offerors of any proposals that have been determined by the Procuring Agency as not in the competitive range, and cannot be reasonably made to be within the competitive range, will be notified in writing, including the shortcomings of their proposals.

IV. Discussions with Offerors in the Competitive Range. The Offerors whose proposals are found by the Procuring Agency to be within the competitive range, or may be reasonably made to be within the competitive range, will be notified and any questions and/or requests for clarifications provided to them in writing. Each such Offeror may be invited for a private interview(s) and discussions with the Procuring Agency to discuss answers to written or oral questions, clarifications, and any facet of its proposal.

In the event that a proposal, which has been included in the competitive range, contains conditions, exceptions, reservations or understandings to any Contract requirements as provided in "Form for Proposal Deviation," said conditions, exceptions, reservations or understandings may be negotiated during these meetings. However, the Procuring Agency shall have the right to reject any and all such conditions and/or exceptions, and instruct the Offeror to amend its proposal and remove said conditions and/or exceptions; and any Offeror failing to do so may cause the Procuring Agency to find such proposal to be outside the competitive range.

No information, financial or otherwise, will be provided to any Offeror about any of the proposals from other Offerors. Offerors will not be given a specific price or specific financial requirements they must meet to gain further consideration, except that proposed prices may be considered to be too high with respect to the marketplace or unacceptable. Offerors will not be told of their rankings among the other Offerors.

V. Factory and Site Visits. The Procuring Agency reserves the right to conduct factory visits to inspect the Offeror's facilities and/or other transit systems which the Offeror has supplied the same or similar equipment.

VI. Best and Final Offers (BAFO). After all interviews have been completed, each of the Offerors in the competitive range will be afforded the opportunity to amend its proposal and make its BAFO. The request for BAFOs shall include:

- A. Notice that discussions/negotiations are concluded;
- B. Notice that this is the opportunity for submission of a BAFO;
- C. A common date and time for submission of written BAFOs, allowing a reasonable opportunity for preparation of the written BAFOs;
- D. Notice that if any modification to a BAFO is submitted, it must be received by the date and time specified for the receipt of BAFOs and is subject to the late

submissions, modifications, and withdrawals of proposals provisions of the Request for Proposal;

- E. Notice that if Offerors do not submit a BAFO or a notice of withdrawal and another BAFO, their immediate previous Offer will be construed as their BAFO.

Any modifications to the initial proposals made by an Offeror in its BAFO shall be identified in its BAFO. BAFOs will be evaluated by the Procuring Agency according to the same requirements and criteria as the initial proposals "Proposal Selection Process" (Section 1.1.4.3). The Procuring Agency will make appropriate adjustments to the initial scores for any sub-criteria and criteria which have been affected by any proposal modifications made by the BAFOs. These final scores and rankings within each criteria will again be arrayed by the Procuring Agency and considered according to the relative degrees of importance of the criteria defined in "Proposal Evaluation Criteria" (Section 1.1.4.3.2).

The Procuring Agency will then choose that proposal which it finds to be most advantageous to the Procuring Agency based upon the evaluation criteria. The results of the evaluations and the selection of a proposal for any award will be documented in a report.

The Procuring Agency reserves the right to make an award to an Offeror whose proposal it judges to be most advantageous to the Procuring Agency based upon the evaluation criteria, without conducting any written or oral discussions with any Offerors or solicitation of any BAFOs.

APPENDIX A: ILLUSTRATIVE EVALUATION CRITERIA AND SCORING PROCEDURE

Two scoring methods, each including criteria and application of the criteria, are presented below. The first is a completely weighted method, in which all the criteria have a predetermined role and, given the unavoidably subjective assignment of pass/fail or numerical scores to specific criteria, results in a single, certain total score for each proposal. The second method, the narrative/trade-off method, provides more subjectivity in the assignment and combination of technical scores, and in the trade-offs between price and non-price criteria. An infinite number of variations and combinations of these methods could be developed.

I. COMPLETELY WEIGHTED FORMULA METHOD

1.1.4.3.2 Illustrative Evaluation Criteria (Completely Weighted Formula Illustrative Method)

I. Affordability (pass or fail). *The price proposals will be assessed for affordability. The Procuring Agency will not make an award for any proposal which proposes prices that would render the procurement infeasible.*

II. Minimum Technical Requirements (pass or fail). *Technical proposals shall meet the following minimum technical requirements for any consideration for selection and award. A proposal not meeting all of these requirements will be rejected.*

(NOTE: Certain requirements of the specification can be selected as absolute requirements, such that where any one is not proposed to be met would be reason to reject a proposal. When doing so, the specific requirements must be identified by detailed references.)

EXAMPLES:

1. *Passenger Capacity specified in _____.*
2. *Overall dimensions specified in _____.*
3. *Performance (speed, acceleration, braking, turning radius) specified in _____.*
4. *Emissions specified in _____.*
5. *Propulsion system requirements of _____.*
6. *Body structural and material requirements of _____.*
7. *Service proven technology*

III. Unacceptable Exceptions, Conditions, Reservations and Understandings (pass or fail). *Exceptions, conditions, reservations or understandings that are explicitly, fully and separately stated on the required form of Section 1.1.6.9 "Form for Proposal Deviation" will be evaluated for their acceptability. A proposal having a preponderance of unacceptable exceptions and conditions may be cause for the proposal to be rejected. Each of any exceptions and/or conditions made in a proposal will be evaluated and the Procuring Agency will determine their individual acceptability. An unacceptable exception, condition, reservation or understanding, if not withdrawn by the Offeror upon the request by the Procuring Agency, would be cause for the proposal to be rejected. For the purposes of determining the competitive range a proposal containing unacceptable exceptions, conditions, reservations or understandings may be included on the basis that the proposal is capable of being made acceptable provided that the Offeror withdraw or modify the unacceptable exceptions, conditions, reservations or understandings. Any exceptions, conditions, reservations or understandings which do not cause the Procuring Agency to consider a proposal to be outside the competitive range, will be evaluated according to the respective evaluation criteria and/or sub-criteria which they affect.*

IV. Technical Proposal Scoring Criteria (weight = _____) *The transit bus offered in the technical proposal will be evaluated for the following factors which are listed in their relative order of importance:*

- A. Engine - *Operating experience of previous users and test results of proposed engine and subsystems in transit service. The degree to which performance*

requirements of Part 3: Technical Specifications, for the engine are proposed to be met. The risk of development tasks (if any) will be assessed. (sub-weight = _____)

B. Transmission - Operating experience of previous users and test results of proposed transmission in transit service. The degree to which performance requirements of Part 3: Technical Specifications, for the transmission are proposed to be met. The risk of development tasks (if any) will be assessed. (sub-weight = _____)

C. Major Subsystems - Operating experience of previous users and test results of proposed major subsystems in transit service. The degree to which performance requirements of Part 3: Technical Specifications, for each major subsystem are proposed to be met. The risk of development tasks (if any) will be assessed. (sub-weight = _____)

D. Quality Assurance - Sufficiency of in-place Quality Assurance Program and procedures to meet requirements. (sub-weight = _____)

E. Spare Parts Availability - Degree to which the required availability of spare parts (Section 2.5.4) are proposed to be met or exceeded. (sub-weight = _____)

F. Standard Warranty - Degree to which the standard warranty of Part 5 is proposed to be met or exceeded. (sub-weight = _____)

G. System Support - Demonstrated ability to meet or exceed reliability and maintainability requirements; suitability of test equipment; quality of manuals; and effectiveness of training programs. (sub-weight = _____)

V. Proposed Price (weight = _____). The lowest proposal price (among all proposals) will be divided by the proposal price being scored, and the resulting quantity will be multiplied by the weight for the proposed price criterion.

VI. Qualifications (weight = _____). Degree to which Offeror exceeds the required qualifications of Section 1.1.4.3.1 above.

A. Financial Strength and Resources (sub-weight = _____)

B. Human and Physical Resources (sub-weight = _____)

C. Record of Performance on Bus Contracts (sub-weight = _____)

VII. Other Financial Impacts (weight = _____). This factor will consider the following financial impacts: maintenance costs resulting from parts reliability, parts standardization, warranties, timeframe for Contract performance and final delivery, and the extent to which the Procuring Agency can analyze cost and pricing data.

1.1.4.3.3 Application of Evaluation Criteria. (Completely Weighted Formula Illustrative Method)

(NOTE: This section may or may not be included, dependent upon the specific criteria that are included in Section 1.1.4.3.2.)

Proposals will be evaluated against the pass/fail Criteria Nos. 1, 2 and 3. Any proposal which meets all pass/fail criteria, or fails one or more of these criteria but is susceptible of being made to meet such failed criteria, will be considered within the competitive range. Otherwise, a proposal may not be considered to be within the competitive range.

Sub-criteria of Criteria Nos. 4 and 6 will be scored based on the reviewer's determination of the degree of compliance with Contract requirements, potential risks and benefits, and strengths and weaknesses. The score is reduced in proportion to the extent of non-conformance, discrepancies, errors, omissions, and risks to the Procuring Agency. Scores will be assigned according to the following:

- 9 - 10 Exceptional. Fully compliant with Contract requirements and with desirable strengths or betterments; no errors, or risks, or weaknesses or omissions.*
- 6 - 8 Good to Superior. Compliant with Contract requirements; some minor errors, or risks, or weaknesses or omissions.*
- 4 - 5 Adequate. Minimally compliant with Contract requirements; errors, or risks, or weaknesses or omissions; possible to correct and make acceptable.*
- 1 - 3 Poor to Deficient. Non-compliant with Contract requirements; errors, or risks, or weaknesses or omissions; difficult to correct and make acceptable.*
- 0 Unacceptable. Totally deficient and not in compliance with Contract requirements; not correctable.*

An estimate of the impact costs to the Procuring Agency will be made for the items listed in Criterion No. 7. Resultant scores for each sub-criterion will be weighed by the appropriate weight factors and a total score for each criterion determined. The scores of Criteria Nos. 4, 5 and 6 will then be weighed by the appropriate weight factors and a total score developed for the proposal. The following table illustrates the procedure.

II. NARRATIVE / TRADE-OFF METHOD

1.1.4.3.2 Evaluation Criteria (Narrative / Trade-Off Illustrative Method)

I. Unacceptable Exceptions, Conditions, Reservations and Understandings (pass or fail).
Exceptions, conditions, reservations or understandings that are explicitly, fully and separately stated on the required form of Section 1.1.6.9 "Form for Proposal Deviation" will be evaluated for their acceptability. A proposal having a preponderance of unacceptable

exceptions and conditions may be cause for the proposal to be rejected. Each of any exceptions and/or conditions made in a proposal will be evaluated and the Procuring Agency will determine their individual acceptability. An unacceptable exception, condition, reservation or understanding, if not withdrawn by the Offeror upon the request by the Procuring Agency, would be cause for the proposal to be rejected. For the purposes of determining the competitive range a proposal containing unacceptable exceptions, conditions, reservations or understandings may be included on the basis that the proposal is capable of being made acceptable provided that the Offeror withdraw or modify the unacceptable exceptions, conditions, reservations or understandings. Any exceptions, conditions, reservations or understandings which do not cause the Procuring Agency to consider a proposal to be outside the competitive range, will be evaluated according to the respective evaluation criteria and/or sub-criteria which they affect.

II. Other Pass/Fail Criteria - (NOTE: If the procuring agency wishes to impose any other unalterable conditions on the proposals, these may be included as pass/fail criteria. Proposer criteria in addition to those specified in Section 1.1.4.3.1 “Qualification Requirements” (such as financial capability, proof of ability to provide performance bonds, or proven experience record) or essential technical criteria (such as propulsion system or approved equal, or structural requirements) may be either included in this category as pass/fail criteria, or evaluated under the following criteria with extremely low ranking for attributes that are unsatisfactory. The necessary input data should correspond to proposal requirements listed in Sections 1.1.3.2.2 "Technical Proposal" or 1.1.3.2.3 "Management Plan.")

III. Technical Proposal - The transit bus and support offered in the technical proposal will be evaluated for the following factors which are listed in their relative order of importance:

A. Powertrain - Operating experience of previous users and test results of proposed engine, transmission, and subsystems in transit service. The degree to which performance requirements of Part 3: Technical Specifications and the needs of the Procuring Agency, for the engine and transmission are proposed to be met. The risk of development tasks (if any) will be assessed.

B. Structure, Suspension, and Body - Operating experience of previous users and test results of proposed structure, suspension (including braking systems and steering) and body in transit service. The degree to which performance requirements of Part 3: Technical Specifications and the needs of the Procuring Agency, for these systems are proposed to be met. The risk of development tasks (if any) will be assessed.

C. Other Major Subsystems - Operating experience of previous users and test results of proposed major subsystems in transit service. The degree to which performance requirements of Part 3: Technical Specifications and the needs of the Procuring Agency, for each major subsystem are proposed to be met. The risk of development tasks (if any) will be assessed.

D. Quality Assurance - Sufficiency of in-place Quality Assurance Program and procedures to meet requirements.

E. Spare Parts Availability - Degree to which the required availability of spare parts (Section 2.5.4) are proposed to be met or exceeded.

F. Standard Warranty - Degree to which the standard warranty of Part 5 is proposed to be met or exceeded.

G. System Support - Demonstrated ability to meet or exceed reliability and maintainability requirements; suitability of test equipment; quality of manuals; and effectiveness of training programs.

H. Other Financial Impacts - This factor will consider the following financial impacts: maintenance costs resulting from parts reliability, parts standardization, warranties, timeframe for Contract performance and final delivery, and the extent to which the Procuring Agency can analyze cost and pricing data.

I. Qualifications - Degree to which Offeror exceeds the required qualifications of Section 1.1.4.3.1 above.

- a) Human and Physical Resources.*
- b) Financial Strength and Resources.*
- c) Record of Performance on Bus Contracts.*

(NOTE: The necessary input data should correspond to proposal requirements listed in Sections 1.1.3.2.2 "Technical Proposal" or 1.1.3.2.3 "Management Plan.")

IV. Proposed Price. *The price proposals will be evaluated and appropriate, uniform treatment of unit costs, ancillary products and services, escalators, exchange rates, deviations and options will reduce each proposal to a single price evaluation figure. (NOTE: FTA competitive procurement requirements specify that to preserve the right to exercise options, they should be included in the evaluation).*

1.1.4.3.3 Application of Evaluation Criteria. (Narrative / Trade-Off Illustrative Method)

(NOTE: This section may or may not be included, dependent upon the specific criteria that are included in Section 1.1.4.3.2.)

1. Proposals will be evaluated against the pass/fail Criteria Nos. 1 and 2. Any proposal which meets all pass/fail criteria, or fails one or more of these criteria but is deemed susceptible of being made to meet such failed criteria, will be considered within the competitive range. Otherwise, a proposal may not be considered to be within the competitive range.

Sub-criteria of Criterion No. 3 will be evaluated based on the reviewer's determination of the degree of compliance with Contract requirements, potential risks and benefits, and strengths and weaknesses. One of the following adjectival ratings should be used for each subcriterion:

<i>Excellent</i>	<i>Significantly exceeds in all respects the minimum requirements; high probability of success; no significant weaknesses.</i>
<i>Very Good</i>	<i>Substantial response; meets in all aspects and in some cases exceeds, the critical requirements; no significant weaknesses.</i>
<i>Good</i>	<i>Generally meets minimum requirements; good probability of success; weaknesses can be readily corrected.</i>
<i>Marginal</i>	<i>Lack of essential information; low probability for success; significant weaknesses, but correctable.</i>
<i>Unsatisfactory</i>	<i>Fails to meet minimum requirements; needs major revision to make it acceptable.</i>

Evaluators are to substantiate each rating with a brief narrative explaining their evaluation. The narrative will be specific in nature, addressing the strengths/weaknesses of the proposal in each area and provide a sound rationale for the conclusion reached. This becomes the basis for the evaluator's overall rating and comparison to other proposals. To arrive at the overall technical rating, the evaluator will develop a summary statement.

Evaluators may utilize an informal weighting scheme as a tool (not to be considered the formal evaluation) to assist them in formulating their evaluation. This may be helpful to individual evaluators in terms of remaining focused on the relationship between criteria and facilitate the evaluation process.

2. The individual evaluators will rank each of the proposals reviewed in descending order and provide a supporting narrative, addressing the specific elements of the proposal that are the determining factors (consistent with step 1 findings) for their position within the ranking.

3. Committee members will review and discuss the individual findings and develop a consensus ranking consistent with the evaluation criteria. The committee ranking must also be supported by a narrative that provides the rationale (specific strengths and weaknesses) for their determination.

4. The rank ordered list of proposals will be arrayed in descending order together with the price evaluation figure for each proposal. As the list is reviewed in descending order, any increase in price as technical merit decreases will cause the elimination of the proposal from the list. If more than one proposal remains, the committee will review the trade-offs between descending technical merit and descending price. The committee will then make a decision regarding which of the proposals is the most advantageous to the Procuring Agency, price and other factors considered.

APPENDIX B.2

SPECIFICATION/SCOPE OF SERVICE GUIDE

Prepared by Office of Procurement

The Metropolitan Transit Authority

of Harris County, Texas

January 1987

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FOREWORD

This document has been prepared to assist Metropolitan Transit Authority (METRO) personnel in the preparation of Equipment Specifications, Data Sheets, Scope of Services and Statements of Work.

INTRODUCTION

This document provides guidelines and recommendations for developing the format and content of a specification, data sheet, Scope of Service or Statement of Work for the following, but not limited to:

- Capital equipment procurement
- Bus modifications
- Maintenance equipment
- Off-the-shelf equipment or hardware
- Services - professional
- Services - personal and non-personal
- Supplies

Statements shown in light type provide instruction and clarification for a specification or Scope of Service paragraph, and statements in bold type are suggested wordings for the content of a paragraph.

Each specification, data sheet or statement of work statement adopted from this document should be carefully reviewed and modified as needed prior to being incorporated into a specification. The scope of service statements are typical examples for services required and should only be used as a guide.

The use of the word Contractor is synonymous with the words vendor, supplier, seller or bidder.

Commercial-type requirements such as warranty provisions, cost information, delivery information and method of payments should not appear in a technical specification or scope of service since they will be specified in other documents provided by the Office of Procurement.

OBJECTIVE OF A SPECIFICATION OR A SCOPE OF SERVICE

The objective of a specification, data sheet or scope of service is to communicate to Contractors and Procurement personnel what is required and also provide the basis for quality assurance to determine if the Contractor has met the requirements of the contract or purchase order. The specification or scope of service must be written in clear, unambiguous and precise language to communicate effectively what is required. Remember, the Contractor has total responsibility for the work after receipt of order.

WHICH TYPE OF SPECIFICATION OR SCOPE OF SERVICE TO USE

The following is an example of which type of specification or scope of service may be used, but not necessarily limited to:

Six-Section Equipment Specification

- Capital equipment procurement
- Bus modifications
- Maintenance equipment

Scope of Service

- Services - professional
- Services - personal and non-personal

Brand Name or Equal Equipment Specification/Data Sheet

- Capital equipment procurement
- Maintenance equipment
- Off-the-shelf equipment or hardware (complex)

Statement of Work/Purchase Description

- Off-the-shelf equipment or hardware (routine)
- Services - personal and non-personal
- Supplies

DO'S AND DON'TS OF A SPECIFICATION OR SCOPE OF SERVICE

The following is a list of do's and don'ts that should be reviewed prior to starting the first draft of a Specification or Scope of Service:

DO'S

- Develop the correct mental attitude. Be positive.
- Learn the content and format of a six-section specification. (Once you have done this and adopted the proper specification writing attitude, you will be able to write any type or format of Specification or Scope of Services. This will hold true whether you require equipment, supplies, or services.)
- Write the Specification or Scope of Service to be precise and perfectly clear.
- Write the Specification or Scope of Service in short, concise sentences in the simplest form possible.
- Determine and separate your essential requirements from desirables or "nice to have" needs.
- Whenever possible, write specifications that allow open competition.
- Specify requirements within the state-of-the-art of the industry.
- Obtain technical information from sources such as:

- publications
 - industry releases
 - manufacturers
 - contractors
 - fellow workers
- In the process of obtaining technical information, do not commit METRO in any way.
 - Include Quality Assurance Provisions that mesh with the stated requirements.
 - Clearly communicate your technical knowledge in the Specification.
 - Use decimals in preference of fractions.
 - After you have written what you feel is a perfectly clear and brief statement of requirement, ask yourself, "Is there any way that anyone could misconstrue this statement?"

DON'TS

- "Re-invent the wheel" when an existing Specification or Scope of Service is available.
- Make ambiguous statements, i.e.; the highest quality, in accordance with industry practices, acceptance per industry practices.
- Specify unrealistic or unnecessarily restrictive requirements.
- Provide information to one bidder that will give an advantage over another bidder.
- Allow manufacturer's or manufacturer's representatives to write the Specification or Scope of Service.
- Use unfamiliar words, colloquialisms and words having more than one meaning.
- Use open-ended requirements such as:
 - As directed
 - Subject to approval
 - Satisfactory to
- Use "Bidder to do at no additional cost" (Leave any addresses to money out of the Specification or Scope of Service.)
- Use the term "and/or" in the Specification or Scope of Service.
- Dictate to the Contractor how to accomplish the requirements.

PROJECT MANAGER/USER RESPONSIBILITY TO PROCUREMENT

Upon preparing an Invitation for Bid (IFB), Procurement with assistance from the Project Manager or user has total responsibility for preparing the following sections:

- Bidding Requirements
- Forms for Bidding
- Proposed Contract

The Project Manager or user should input to Procurement any information that does not apply to the Specification or Scope of Service via memorandum and the information will be included in the appropriate document. Examples of this type of information are as follows:

- Requirements that must be provided to METRO with bids or prior to award
- Requirements that must be completed prior to Notice to Proceed of the Contract
- Cost Information
- Delivery Information
- Warranty Provisions
- Methods of Payments
- Liquidated Damages
- Instructions on Reworking Rejected Items
- Availability of Equipment for Retrofit, Modifications, Service or Repair
- Inspection/Acceptance Provisions

This shall also be true for Request for Proposals (RFP) or Purchase Orders.

The Specification or Scope of Service of the IFB, is the total responsibility of the Project Manager or user with the assistance of Contracts. The Specification or Scope of Service should be provided to Procurement double-spaced and in the final format. To be consistent with the typing of the entire contract, the specification or scope of service should be typed with a 10 pitch courier print wheel and margins of 8 and 77.

The ultimate goal is for the Project Manager or user to furnish to Contracts a specification or scope of service that can be utilized in a bid package without discussions with the Project Manager or user.

PART I SIX-SECTION EQUIPMENT SPECIFICATION

The six-section specification, sometimes called a detail specification, is used where there is a need to purchase the same product or equipment repeatedly.

The section numbers and headings shown below should be used on all specifications when the headings are applicable.

<u>Number</u>	<u>Section</u>
1.0	Scope
2.0	Reference Documents
3.0	Requirements
4.0	Contractor Quality Assurance Program
5.0	Preparation for Shipment
6.0	Contract Data Requirements List

The recommended content for each section is shown below.

1.0 Scope

Provide a brief description of the product or item of equipment to be purchased and a general description of the contents of the specification. Also, state where the equipment is to be used and if installation is required.

This specification shall govern the materials, fabrication, assembly, testing, and other requirements for (Example: centrifugal pumps) for use (Example: in METRO's Kashmere Maintenance Facility).

2.0 Reference Documents

List governmental regulations, major codes, industry standards, and other similar documents which are utilized in the specification to define the design, materials, fabrication, testing, installation, services, and other similar requirements. Every reference document listed here should be addressed at the appropriate point in the body of the specification.

The introductory wording given below for this paragraph establishes the date of inquiry issue as the control data for applicable editions of standards, codes and addenda referenced within a specification. The responsible individual should verify that a control data is established for reference standards at the time of use.

In addition to the requirements designated elsewhere in this specification, the design, materials, fabrication, and testing of the equipment, materials, and services shall be, to the extent specified

herein, in accordance with the latest issues and addenda, in effect at the date of inquiry issue, of the following industry codes and standards.

Reference standards employed by this outline are listed below to provide an example of formatting for industry references.

<u>Document Identification</u>	<u>Title</u>
<u>American Institute of Steel Construction (AISC)</u>	
AISC S326	Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings.
<u>American National Standards Institute (ANSI)</u>	
ANSI A58.1	Minimum Design Loads for Building and Other Structures
<u>American Society for Testing and Materials (ASTM)</u>	
ASTM A36	Specification for Structural Steel
<u>American Welding Society (AWS)</u>	
AWS D1.1	Structural Welding Code, Steel
<u>National Fire Protection Association (NFPA)</u>	
NFPA 70	National Electrical Code (NEC)
<u>Occupational Safety and Health Standards of the U.S. Department of Labor, Part 1910 (OSHA)</u>	
Section 1910.95	Occupational Noise Exposure
Subpart D	Walking-Working Surfaces

3.0 Requirements

3.1 General

Include statements of those requirements that are common to all components of the equipment of system being specified.

3.2 Performance

Provide a definition of the performance requirements for rating the equipment.

3.3 System Description

Provide a brief but inclusive system description for a specification written for a mechanical system or equipment package. Single equipment items usually will not require a system description.

3.4 Mechanical Design

3.4.1 Component

Describe requirements for the individual components that make up the piece of equipment under this series of headings. This would include such things as a listing of design requirements for the components that make up an equipment item (e.g., shaft, seals, coupling, impeller).

3.5 Electrical

A reference should be provided here for invoking the National Electrical Code and for identifying the required hazardous area classification for electrical components that are to be provided. This reference should be a statement such as:

3.5.1 Electrical equipment furnished under this specification shall be in compliance with NFPA Bulletin No. 70, "National Electrical Code," (NEC) and shall comply with NEC requirements for the hazardous and non-hazardous area classifications specified on the data sheets.

3.6 Structural

Specify the structural requirements for the item of equipment under this heading. This section should include a reference to appropriate AISC and ASTM standards and requirements of a general nature. Specific requirements such as design criteria or a basis for handling wind loads, transportation and other specific details should be incorporated by line entries on the equipment data sheets.

The following wording is suggested for general structural requirements in an equipment specification:

3.6.1 All structural steel shall be new and damage-free. Each structural steel member for skids, bases or other assembly shall be a hot-rolled structural shape, plate or bar meeting the requirements of ASTM a 36.

3.6.2 Anchor bolt details and design shall be provided by the contractor. Anchor bolts will be furnished by METRO.

3.6.3 Ladders and platforms with handrails shall be furnished for access to all service and inspection openings for equipment requiring inspection and servicing.

3.6.4 Stair treads, platforms, walking and work surfaces, and access ways shall be provided with steel grating walking surfaces.

3.7 Exceptions

Specifications that are written around a code or industry standard such as ASME or API should list exceptions or clarifications to those standards. The following is an example of how this would be done:

3.7.1 Requirements

Each centrifugal pump shall be in accordance with API 610 except for the additions, modifications, deletions, or further clarifications stated below:

<u>API 610 Para. No.</u>	<u>Buyer Exc. No.</u>	<u>Description</u>
		<u>SECTION 2 - BASIC DESIGN</u>
		<u>General</u>
2.1.21	1	Add the following new paragraph: Single-stage process pumps are to have a double volute casing when the pump has a 3-inch (76 mm) discharge or larger and a 10.5-inch (267 mm) maximum allowable impeller diameter, or larger.
2.1.22	2	Add the following new paragraph: Mechanical equipment and components of centrifugal pumps quoted in accordance with this specification must be proven in service for at least one year in not less than two similar applications.

4.0 Contractor Quality Assurance Program

4.1 Inspection And Testing

For specifications written for a product, material, service, equipment or bus modifications/retrofit with a standard level of quality the following wording is suggested:

The responsibility for Quality Assurance shall be with the Contractor subject to verification by METRO.

4.2 Contractor Surveillance

The purpose of this section is to initiate METRO surveillance of Contractor manufacturing operations and document certification requirements. Paragraphs included in this section should define where to find the specific requirements. The following wording is suggested:

4.2.1 Product surveillance and document certification shall be as specified in the procurement documents, e.g., specification, data sheets, contractor data requirements list.

5.0 Preparation for Shipment

5.1 Cleaning (suggested wording)

All dirt, grime, grease, and shop residue shall be removed from surfaces of furnished equipment prior to packaging and shipping from the Contractor's facility.

5.2 Lubrication (suggested wording)

All bearings and other similar parts of furnished equipment shall be suitably lubricated prior to shipment in accordance with the Contractor's recommended lubrication instructions.

5.3 Painting (suggested wording)

The items provided under this specification shall be painted in accordance with the painting requirements specified on the data sheets.

5.4 Preservation and Packaging

The following wording may be used in specifications for items where the Contractor's standard preservation and packaging methods are considered to be acceptable and preservation and packaging requirements are not defined by a national standard.

5.4.1 Machined and interior surfaces of furnished equipment shall be coated with a preservative material capable of preventing corrosion damage for a minimum of 6 months in covered storage.

5.4.2 Contractor's standard preservation and packaging methods will be acceptable if such comply with applicable requirements of governing freight classifications and provide adequate protection from all anticipated shipping exposures.

5.5 Equipment Identification (Suggested Wording)

Equipment identification requirements are specified on the attached data sheets.

6.0 Contract Data Requirements (suggested wording)

6.1 Contract data requirements shall be as specified on the attached Contract Data Requirements List (CDRL).

<u>DATA SHEET FOR SIX-SECTIONS SPECIFICATIONS</u>		
The data sheet is used to describe specific requirements of a product or equipment item. The originator shall complete the description and requirements column of the data sheet.		
<u>DATA SHEET</u>		
		Identification No. _____
Description: _____ _____		
Quantity: _____	IFB No.: _____	
Location: _____ _____		
<u>UTILITY</u>	<u>AVAILABLE</u>	<u>CONTRACTOR'S REQUIREMENTS</u>
Volts	120/460	_____
Phase	1/3	_____
System	60 Hz	_____
Air	90 psi	_____

**CONTRACT DATA REQUIREMENTS LIST
FOR
SIX-SECTION SPECIFICATION OR EQUIPMENT SPECIFICATION/DATA SHEET**

The Contract Data Requirements List (CDRL) is used by METRO to convey to the Contractor the required contract data documents, type of document and the time span that each type of document must be submitted to METRO. The following list is an example of the types of required Contractor data. Each individual specification should be reviewed for the specific required types of Contractor data.

Description: _____

Location: _____

IFB/RFP No.: _____

Contract/P.O. No.: _____

Contractor: _____

The Contractor's bid shall state his intended compliance with this listing, as regards to the type of data required and schedule for data submittal, as well as the Quantity and Data Form (reproducible, prints, etc.) indicated in the IFB and Contract. The Contractor shall confirm responsibility for similar compliance by his subcontractors as a part of the Contractor's bid. Deviation(s) from the Data Submittal Schedule shall be shown in the comments column.

All data submitted shall be identified as a minimum with identification number, description and Contract number.

When an "X" has been indicated in the "B" (with bid) column on the following list, _____ copies of the required data shall accompany the bid.

After notice of award, the Contractor shall furnish quantities of reproducibles and copies of all data to be submitted as follows:

- For Approval _____ reproducibles, _____ copies
- Certified _____ reproducibles, _____ copies
- Record _____ reproducibles, _____ copies

The above quantities are to be submitted to the Project Manager with a copy of the transmittal to Contracts.

Drawing prints may be folded, but reproducibles shall be rolled. Where the Contractor's originals are multicolored or halftone "slick paper" brochures, bulletins, instruction books, and other similar preprinted documents, the Contractor shall furnish originals for the quantity of copies required.

After notice of award, unless otherwise noted in the comments column, the following data submittal schedule shall apply:

FOR APPROVAL DATA DUE ____ WEEKS AFTER CONTRACT NOTICE OF AWARD,

CERTIFIED CORRECT DATA DUE ____ WEEKS AFTER METRO'S APPROVAL,

RECORD DATA DUE ____ WEEKS AFTER CONTRACT NOTICE OF AWARD.

ABBREVIATIONS: B - With Bid, A - Approval, C - Certified, R - Record (information only)

DATA DESCRIPTION/DEFINITION	DATA REQUIRED				COMMENTS
	B	A	C	R	
OUTLINE DRAWINGS Plan/elevation drawings with overall dimensions, connection dimensions, and required clearances for assembly, operation, and maintenance access.	X	X	X	—	
EQUIPMENT ARRANGEMENT DRAWINGS Relative dimensioned location of Contractor supplied components.	X	X	X	—	
ASSEMBLY DRAWINGS Relative location and dimensions of components and subassemblies required for installation.	X	X	—	—	
ONE-LINE ELECTRICAL DIAGRAM One-line representation of an electrical power and/or control circuit.	—	X	X	—	
FABRICATION OR PRODUCTION SCHEDULE Calendar-dated schedule for manufacture of Contractor supplied equipment/ components, including schedule or inquiry Purchase Order, and delivery of subcontractor items with subcontractor names.	—	—	—	X	
EQUIPMENT WEIGHTS Empty, operating and shipping weight.	X	—	—	X	
COMPLETED METRO'S DATA SHEETS	X	—	—	—	
CATALOG DATA	X	—	—	—	
LIST OF EXCEPTIONS TO SPECIFICATION	X	—	—	—	
OPERATING INSTRUCTIONS	—	—	—	X	
MAINTENANCE AND LUBRICATION RECOMMENDATIONS	—	—	—	X	

DATA DESCRIPTION/DEFINITION	DATA REQUIRED				COMMENTS
	B	A	C	R	
Recommend maintenance procedures and intervals, with lubricant descriptions, grades, and alternate supplier designations.					
MASTER PARTS LIST List parts, part numbers, serial numbers, and interchangeability information.	—	—	—	<u>X</u>	
SPECIAL MAINTENANCE TOOL REQUIREMENTS	<u>X</u>	—	—	—	
SHIPPING, HANDLING AND STORAGE PROCEDURES	—	—	—	<u>X</u>	
INSTALLATION/ERECTION PROCEDURE	—	—	—	<u>X</u>	
DBE/WBE ASSURANCE STATEMENT	<u>X</u>	—	—	—	
DBE/WBE UNAVAILABILITY CERTIFICATE	<u>X</u>	—	—	—	
CONTRACTOR AND FIRST TIER SUBCONTRACTOR PARTICIPATION	<u>X</u>	—	—	<u>X</u>	
DBE/WBE UTILIZATION REPORT	—	—	—	<u>X</u>	

CHECKLIST FOR SIX-SECTION SPECIFICATION (PART I)

1. Review Section 1 for:
Accurate statement of scope
2. Review the references in Section 2 for:
 - a. Necessity
 - b. Availability
3. Review the requirements of Section 3 to determine that:
 - a. Referenced documents are necessary and applicable
 - b. Requirements are predominantly design or performance and that the same requirement is not covered both ways
 - c. No requirement is
 - Unrealistic
 - Indefinite
 - Restrictive
 - d. The requirements meet the needs of METRO
 - e. The requirements are within industry's capability
 - f. Each requirement is capable of being inspected or otherwise verified
4. Review Section 4 to determine that:
The Contractor's standard quality assurance program will be suitable to METRO
5. Review Section 5 to insure that:
Preservation, packaging, and packing are realistic
6. Review Section 6 to insure that:
 - a. Delivery of adequate data, i.e., drawings, calculations, catalogs, reports, etc., is identified on the CDRL to accomplish a project.
 - b. Requested data will meet the needs of an installation contractor.

PART II SCOPE OF SERVICE

The Scope of Service is the contractual document for expressing exactly what services or product you require and for evaluating the service or product of the contractor.

The suggested section headings shown below should be used in all scope of services when the heading is applicable. Appropriate headings should be added as required.

Section Headings

Background
Primary Work Task
Other Work Tasks/Services
Ordering Procedure
Contractor Quality Assurance
Technical Reports

BACKGROUND

Provide a description of the services/product to be contracted for and a general description of the contents of the scope of service. Provide any special background information available.

PRIMARY WORK TASKS

Include statements under this heading to thoroughly describe the primary work task expected under the scope of service.

OTHER WORK TASKS/SERVICES

Include statements under this heading to describe additional work tasks or services that may be required under the scope of service.

CONTRACTOR QUALITY ASSURANCE

Include statements to describe any special quality reliability or quality assurance requirements.

TECHNICAL REPORTS

Include statements to include any and all technical reports that will be required during the term of the contract.

SCHEDULE OF ITEMS AND PRICING

The following is a suggested format to list items and request unit pricing for pay items referenced in the Scope of Services. The Schedule of Items and Price should be an attachment to the Scope of Services.

SCHEDULE OF ITEMS AND PRICES

The Contractor shall complete the following price schedule based on the annual estimated quantities of the services required:

<u>Item</u>	<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit Price</u>
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PART III BRAND NAME OR EQUAL EQUIPMENT SPECIFICATION/DATA SHEET

The brand name or equal equipment specification/data sheet format is used for the procurement of items such as machine tools, fabrication equipment, cleaning equipment, mobile equipment, and standard off-the-shelf equipment.

The following is an example of a specification/data sheet for a 19" x 78" engine lathe that can be used as a guide for the procurement of any of the above listed items:

SPECIFICATION/DATA SHEET
ENGINE LATHE
19" X 78"

GENERAL DESCRIPTION

This Data Sheet covers the requirements for a rigid base, floor mounted, metal cutting, electric motor driven engine lathe suitable for general purpose metal turning, facing, boring, drilling and threading operations in a General Purpose Maintenance Shop for a Transit Authority. The machine shall consist of a floor mounted base and bed with ways, head stock, tail stock, carriage and other specified components.

The lathe shall be a Monarch Dean Smith & Grace Limited Model #1910 or equivalent.

DESIGN FEATURES

GROUNDING

The point of connections for METRO's power supply is to include a grounding point for the electrical grounding of the machine frame. Contractor to provide a grounding stud.

NAMEPLATE

A corrosion resistant metal nameplate shall be attached to the Machine with removable corrosion resistant screws. The nameplate shall contain at least the following information:

- Manufacturer's name
- Model number of Machine
- Serial number of Machine
- METRO's contract number
- METRO's equipment tag number
- Date of manufacture

LUBRICATION

A means of positive lubrication shall be provided for all components of the Machine that require lubrication.

ENGLISH/METRIC

When applicable, machines with thread cutting capabilities must have the capability in both English and Metric.

<u>SIZES AND CAPACITIES</u>		
The Engine Lathe must comply with the following sizes and capacities. The Contractor must furnish brochures, information requested and fill in the blank spaces.		
<u>SIZES/CAPACITIES</u>	<u>REQUIREMENT</u>	<u>CONTRACTOR'S SPECIFICATION</u>
The following are suggested major headings with an example of each from a brochure of a Monarch Dean Smith & Grace Limited Model #1910:		
<u>WORKING CAPACITY</u>		
Swing Over Bed (Min)	19.5"	_____
<u>SPEEDS & FEEDS</u>		
Head stock		
Forward & Reverse Speeds (Min)	16	_____
Universal Gearbox		
Longitudinal Feeds (Min)	30	_____
<u>SIZES</u>		
Head stock		
Camlock Spindle Nose	D1-8"	_____
<u>SCREW CUTTING</u>		
Thread Per Inch	45 from 2 to 56 tpi	no exception
<u>TAIL STOCK</u>		
Spindle Diameter (Min)	3.5"	_____
<u>SADDLE AND APRON</u>		
Length of Saddle Guide	Mfr. Std.	_____

<u>OPTIONS AND ACCESSORIES</u>		
The Contractor must furnish manufacturer and descriptive literature of the following listed options and accessories.		
<u>OPTION/ACCESSORY</u>	<u>REQUIREMENT</u>	<u>CONTRACTOR'S SPECIFICATION</u>
Gap Bed w/Removable Piece	1 ea.	_____
Traveling Steady .625" to 4.5"	1 ea.	_____
Stationary Steady 1" - 7"	1 ea.	_____
4 - Jaw Chuck 18"	1 ea.	_____

<u>TOOLING</u>		
The Contractor must furnish manufacturer and descriptive literature of the following listed tooling.		
<u>TOOLING</u>	<u>REQUIREMENT</u>	<u>CONTRACTOR'S SPECIFICATION</u>
Jacobs Rubberflex Collet Chucks (Specify Capacity)	1 set	_____
Jacobs Rubberflex Collets for use with above Collet Chucks	1 set	_____
Revolving Live Center for Tail stock	1 ea.	_____
Face Plate - 16"	1 ea.	_____

<u>UTILITIES</u>		
The following utilities are available at the maintenance facility. The Contractor must furnish the required utility consumption.		
<u>UTILITY</u>	<u>AVAILABLE</u>	<u>CONTRACTOR'S REQUIREMENTS</u>
Volts	120/460	_____
Phase	1/3	_____
System	60 Hz	_____
AMPS	N/A	_____

<u>CONTRACTOR INFORMATION REQUIRED</u> <u>(MUST BE FILLED IN BY BIDDER)</u>	
<u>MACHINE SIZE AND WEIGHT</u>	
Weight with Standard Equipment including Motors	_____ lbs.
Shipping Weight of Completed Machine	_____ lbs.
Overall Dimensions of Machine (L x W x H)	___ " x ___ " x ___ "
<u>MANUFACTURER OF MACHINE</u>	_____
<u>COUNTRY OF ORIGIN OF MACHINE</u>	_____
<u>COUNTRY OF ORIGIN OF OPTIONS AND ACCESSORIES</u>	_____
<u>COUNTRY OF ORIGIN OF TOOLING</u>	_____
<u>TECHNICAL DATA ON MACHINE ATTACHED</u>	Yes ___ No ___
<u>EQUIPMENT I.D. NUMBER</u>	_____

PART IV STATEMENT OF WORK/PURCHASE DESCRIPTION

The Statement of Work (SOW) is a special category of a specification that is used when contracting for services and equipment. The SOW outlines the nature of the work, the level of effort required and the anticipated results of the work, rather than detailed technical specifications of a particular item. For services and equipment that can be adequately described with less data than that contained in the Six-Section Equipment Specification, Scope of Services or Brand Name or Equal Equipment Specification/Data Sheet Format, you can write a short SOW. This approach is usually reserved for Off-the-Shelf hardware or commonly available services.

When writing a SOW, you must utilize your special knowledge of the subject in deciding the content of the SOW. The key elements are the same as those for any Specification or Scope of Service, with the added requirement that you must state when and where the work is to be performed. The SOW must deal with the following basic questions:

- What needs to be done?
- Where should it be done?
- When should it be done?
- What should the final output consist of?

When the SOW has answered the above questions, it is essentially complete.

APPENDIX B.3

LIQUIDATED DAMAGES CHECK LIST			
BART PROJECT NO. _____ CONTRACT TITLE: _____			
ESTIMATED CONTRACT VALUE: General _____ Mechanical _____ Electrical _____ Other _____			
Item	Project Manager's Determination		If Applicable, Dollar Amount
	Applicable	Non-Applicable	
1. Costs reflecting the relative importance of completion of this contract to the completion of other directly associated activities, e.g., if a \$10 million dollar substation is being procured and requires construction of a building, the cost to BART of delays upon the completion of the building on the substation procurement should be considered.			
2. Rental costs for each day of facilities and equipment necessitated by the delays in contract completion.			
3. Cost(s) for additional maintenance required on equipment or structures being replaced for each day of delay in completion of the project.			
4. Additional operating costs to BART for each day of delay in completion, including but not limited to cashier, operator and supervisory costs resulting from contract completion delays. Costs of route detours or substitution of one transit mode for another shall be considered.			
5. Loss of revenue to BART's operations for each day due to delay in contract completion.			
6. Any other damages for each day of delay in completion which BART may anticipate, e.g., is there a high potential for delay of one prime contract with resulting costs to BART for the other prime contracts.			
7. Estimated costs of inspection.			
8. Actual damages (Project Manager to indicate whether actual types of damages should be excluded from the calculations).			

SIGNED _____
PROJECT MANAGER

APPENDIX B.5

BART PURCHASE CARD SYSTEM

1.0 PURPOSE AND CONTENT

The BART purchase card system provides a means for using credit cards for small purchases.

The regulations governing the use of the BART purchase cards are set forth in the District's Procurement Manual, Chapter V, Section [.] Micropurchase procedures and other related sections.

The system contains specific procedures for use by procurement personnel as well as a wide range of individuals who participate in the purchase card program. These procedures integrate diverse regulatory and operational information from numerous sources in a user-oriented document.

The Supervisor, Procurement Administration has been designated by the Department Manager, Procurement as the focal point for applications, issuance and destruction of cards, establishment of reports, and administrative training for this Program.

2.0 INTRODUCTION

The State of California ("State") has awarded a contract for statewide commercial credit card services to Rocky Mountain BankCard System, Inc. ("contractor"). The contract was intended to provide, at the request of state ordering agencies, state-wide commercial purchase cards and associated services to state employees for the purpose of paying for purchases made for official state purposes.

In 1995, the State made these services available to any of its political subdivisions of which BART as a public utility district qualifies for participation in the program. On July 1, 1996, the District commenced its program and issued these procedures.

These procedures are designed to supplement the District's Procurement Manual and any "Instructions for the Use of the District Purchase Card" distributed to the cardholder and "Approving Official Instructions for the Use of the District Purchase Card" distributed to the approving official at the time the card is issued. In the event these procedures conflict with any instructions provided by the contractor, these procedures take precedent.

ALL PURCHASES THAT WILL BE PAID FOR USING THE CARD SHALL COMPLY WITH BART'S PROCUREMENT MANUAL AND THESE PROCEDURES UNLESS OTHERWISE APPROVED BY BART'S PROCUREMENT DEPARTMENT.

3.0 DEFINITIONS

"Approving Official" means the person who reviews and approves the cardholder's monthly statement of purchases.

"Cardholder" means the District employee to whom a card is issued. The card bears this cardholder's name and may only be used by this individual to pay for authorized District purchases.

"Contractor" means the organization that will maintain all accounts as required by the State contract.

"Oral procedure" means a procedure where an order is placed or a purchase is made through an oral agreement which is made in person or by telephone by providing the card for imprint by the Merchant or the card number to the Merchant. No written purchase order or contract is issued by the District. The supplies or services are provided by the Merchant and payment is made using the District Purchase card.

"Statement of Account" is a monthly listing of all payments authorized for purchase and credits made by the cardholder and billed by the merchant.

4.0 RESPONSIBILITIES

- 4.1** As approved by the Procurement Department, the contractor will issue cards to designated cardholders and send out monthly statements to cardholders, approving officials, and the District Controller's office. The contractor will pay merchants in a timely manner and will receive reimbursement from BART.
- 4.2** The Supervisor, Procurement Administration will serve as the liaison between the District and the contractor and subject to the direction of the Department Manager, Procurement, shall oversee the program and establish District guidelines. This individual shall establish authorization codes for controlling purchases as well as approve changes to dollar limitations or authorized merchant codes.
- 4.3** Each cardholder is to reconcile his/her monthly statement and forward the reconciled statement to his/her approving official consistent with instruction issued by Procurement Administration.
- 4.4** The approving official will review the cardholder's monthly statement and serve as liaison with Procurement Administration and the Controller's Office. Each approving official shall establish, after coordination with Procurement Administration, a budgetary limit for each cardholder's monthly purchases.

THE SPONSORING DEPARTMENT'S CONTINUING PARTICIPATION IN THIS PROGRAM IS PREDICATED UPON MAINTAINING EXPENDITURES WITHIN OPERATING BUDGET LIMITS.

FAILURE TO DO SO WILL CAUSE THIS MICROPURCHASE AUTHORITY TO BE REVOKED BY THE PROCUREMENT DEPARTMENT.

The approving official will certify the cardholder's monthly statements and ensure that payments are for purchases which are authorized and made in accordance with the District's Procurement Manual and these procedures.

The approving official will also assist the cardholder in resolving disputed payments.

Either the approving official or the Department Manager, Procurement has authority to direct Procurement Administration to instruct the contractor to cancel a card at any time.

- 4.4.1** This approving authority nominally rests with the Sponsoring or Using Department Manager and may not be further redelegated other than for temporary absences without the concurrence of the Department Manager, Procurement.

Generally, this authority should be redelegated where the Division Manager function oversees 50 employees or more. Any such redelegation on a standing basis such as mentioned above, must be reviewed at least semi-annually by the supervisor as part of employees performance evaluation. Any pertinent information coming out of these reviews should be separately summarized and transmitted to the Procurement Department for their review.

- 4.5** Procurement Administration shall establish a budgetary limit for each office that does not exceed the sum of the approving official's cardholders' monthly purchase limits. This should be reviewed quarterly and adjusted if necessary to reflect the cardholders' actual spending patterns and minimize the risk to the District of a spending overrun in the fourth quarter of the then current fiscal year.

Procurement Administration shall also coordinate, process and monitor resolution of all disputed purchases, credits or billing errors, unless the Department Manager, Procurement designates another individual or office to perform this function.

- 4.6** District Controller's Office shall answer the contractor's questions about payment of monthly statements as well as make payments under this program.

5.0 USE OF THE DISTRICT PURCHASE CARD

- 5.1** The Purchase card may be used to pay for small purchases made in accordance with Chapter V of the District's Procurement Manual and these procedures. It may also be used to pay for orders placed against established requirements contracts or with established sources of supply, when authorized by the contract or regulation requiring use of the source. However, District inventories should be checked for availability prior to making a purchase using the card.
- 5.2** The Purchase card can be used to pay for supplies or services acquired using oral solicitation procedures. It may also be used to pay for supplies or services that are acquired through a purchase order or an individual order under a requirements contract where the contract specifically allows such payment method.
- 5.3** Without exception, the Purchase card may only be used to pay for authorized District purchases.

5.4 Under no circumstances, will the Purchase card be used for cash advances.

6.0 SETTING UP THE PURCHASE CARD ACCOUNT

The contractor will provide Procurement Administration with all the necessary application forms (cardholder, approving official, disputes, destruction notice etc.).

The Sponsoring Department will request that Procurement issue purchase card(s) to named District employee(s) and assure funding of such purchases by using the Bulk funding procedure in BART's Procurement Manual, Chapter V.

Subject to the procurement authority delegation procedures in the Procurement Manual, Chapter I, Procurement Administration will distribute the forms to selected cardholders and approving officials for completion.

The Cardholder(s) and Approving Official will complete the forms indicating they understand the terms of its use and will agree to abide by these procedures. The cards are issued for a one year period and will be subject to review by the Procurement Department each year prior to renewal. (Other organizational functions at BART, such as Internal Audit or Civil Rights, may review usage of the purchase card by the Sponsoring Department.)

Upon completion, Procurement Administration shall process and forward the forms to the contractor and then issue the cards to the sponsoring department when received.

The contractor is capable of providing various reports to meet management and administrative needs. During the account setup process, Procurement Administration will discuss the various reports available with Sponsoring Department management personnel.

7.0 SIGNATURE CARDS

When the account information is submitted to Procurement Administration, a signature card must be completed by each approving official that states the approving official may approve the accuracy of the Statement of Account for payment. The signature card will be forwarded to the Controller's office by Procurement Administration after completion.

Sponsoring departments are responsible for delegating Approving Official authority as necessary to avoid statement processing delays and late payment penalties.

8.0 DOLLAR LIMITS ASSOCIATED WITH THE PURCHASE CARD

Use of the purchase card by a cardholder is subject to a single purchase limit and a monthly cardholder limit. The purpose of these dollar limits is as follows "Single Purchase Limit" is a limitation on the procurement authority ("micropurchase authority") delegated to the cardholder by the Department Manager, Procurement consistent with the requirements of the District's Procurement Manual, Chapter I. This limit cannot be exceeded unless a revised delegation of authority is issued by the Department Manager, Procurement or his or her designee, raising the limit.

(A "single purchase" using the card may include multiple items. However, no single purchases may exceed the authorized single purchase limit established for each cardholder.)

"Monthly Cardholder Limit" is a budgetary limit assigned by the approving official and may be modified if necessary by the Procurement Department. The approving official shall coordinate with Procurement Administration when determining a monthly limit and should reflect spending history as well as budgetary trends. The total dollar value of purchases when using the card for any single month may not exceed the monthly purchase limit set by the approving official subject to concurrence by the Procurement Department.

9.0 AUTHORIZED USE OF THE CARD

9.1 The unique Purchase card VISA card that the cardholder receives, may be used only by that cardholder.

9.2 No other person is authorized to use the card and the card may only be issued to District employees. The card was specially designed showing the District logo imprinted upon it to avoid being mistaken for a personal purchase card.

9.3 When issuing this card to an employee, authorization codes will be established by Procurement Administration and will be incorporated in the card. Under normal circumstances, merchants are required to obtain authorization from the contractor for purchases over \$50.00. However, many merchants now use electronic authorization methods allowing them to obtain authorization for all purchases regardless of amount.

When authorization is sought for a purchase by the merchant, the contractor authorization system will electronically check each individual cardholder's single purchase and monthly limits, the monthly office limit, and the type of merchant where the cardholder is making the purchase before authorization for the transaction will be granted.

9.4 Use of the card must meet the following conditions:

(1) The total of a single purchase to be paid for using the card may be comprised of multiple items and cannot exceed the authorized single purchase limit. Purchases will be denied if the authorized single purchase limit is exceeded. Payment for purchases may not be split in order to stay within the single purchase limit.

(2) All items purchased over the counter to be paid for using the card must be immediately available. No back ordering is allowed as well as deposits for special orders.

(3) All items purchased by a telephone order that will not be confirmed with a written order and be paid for using the card should generally be delivered by the merchant within the 30-day billing cycle. However, a longer period (up to 120 days for delivery) may be utilized by Sponsoring Departments. If the longer period is elected, procedures need to be established by the Sponsoring Department for proper reconciliation of the monthly bills, allowing for the carrying forward of items ordered but not received.

(4) All items purchased during one telephone transaction that will not be confirmed by a written order should generally be delivered in a single delivery. If a Sponsoring Department elects to allow partial deliveries, Sponsoring Department procedures must be implemented to ensure proper reconciliation of all such orders.

(5) The Purchase card may not be used to purchase personal property items over \$1,000 in value unless purchased with the Controller's office concurrence prior to purchase; so the proper tagging can be done and the required accountability established.

(6) When purchasing items by phone or over the counter, the cardholder should inform the merchant that the purchase is subject to state and local tax. Contact the Controller's office for questions in this area.

(7) At the beginning of each District fiscal year and prior to the use of the purchase cards, the Sponsoring Department shall certify that funds as available using the bulk funding procedures in the District's Procurement Manual, Chapter V.

10.0 UNAUTHORIZED USE OF THE CARD

Unless otherwise approved in writing by the Department Manager, Procurement, the card must not be used for the following:

- (1) Cash advances;
- (2) Rental or lease of motor vehicles;
- (3) Rental or lease of land or buildings;
- (4) Purchase of airline, bus, train, or other travel related tickets;
- (5) Purchase of meals, drinks, lodging, or other travel or subsistence costs;
- (6) Purchase of gasoline or oil for District automotive vehicles;
- (7) Repair of District automotive vehicles; and
- (8) Telephone calls

11.0 ACQUISITION PROCEDURES FOR USE WHEN PAYING WITH THE PURCHASE CARD

11.1 When making purchases that will be paid for using the Purchase card, all the applicable acquisition regulations apply. Regardless of whether the open market purchase is made using oral procedures or using a written purchase order or contract, the cardholder must:

- (1) Ensure that funds are available and certified to pay for the items being purchased. A funded Purchase Request (PR) shall support each credit card purchase. The PR may be bulk funded.
- (2) Be aware of the District's commitment to DBE firms and they will be held accountable for their DBE participation during the fiscal year.
- (3) Solicit competition for purchases

- 11.2.1** Users should be aware that it is common commercial practice for banks to charge merchants for their participation in purchase card programs by "discounting" their payment by 2 to as much as 15% of the total charge. A \$100 bill to the customer and paid to the bank in a monthly statement may only represent \$98 to \$85 in actual revenue to the merchant from the bank. Merchants are aware of this and restrained only by competition, will adjust their pricing to reflect these costs; or they will offer their customers a cash discount.
- 11.2.2** It is against District policy to pay any type of a "surcharge" to a Merchant, offsetting the bank discount. Likewise, users should not agree to a Merchant's request to revise the price above what the general public pays for an item in order to make up for the bank's discount.
- 11.3.1** Users should also be aware that proper functioning of this program rests upon timely payments to the Contractor. Disputes should be handled through the Merchant, not the Contractor. Users must know the refund, exchange and warranty terms offered by the Merchant prior to making the purchase. Adjustment of purchases of defective materials from merchants is the responsibility of the sponsoring department and not the Procurement Department, or the Contractor.
- 11.3.2** It is District policy to purchase goods, materials, or equipment only from those Merchants that offer the District full refund or exchange rights at the District's discretion. Such rights shall be in writing, either transmitted to the District employee, or otherwise publicly noticed.
- 11.4** Oral solicitations should be used whenever possible within the local trade area. "Local trade area" is defined as the three county area that encompasses the District.
- 11.5** Written solicitations are recommended to be used when (i) a large number of line items are included in a single proposed acquisition, (ii) obtaining oral quotations is not considered economical or practical, (iii) special specifications are required because items or services cannot be easily explained or (iv) Merchants are located outside the local trade area
- 11.6** Purchases not in excess of \$2,500 may be accomplished without securing competition if the cardholder (functioning as the contracting officer) considers the prices to be reasonable.
- 11.6.1** Generally speaking, the District's pricing objective in making micropurchases, is to obtain the same price that the general public would pay for the item if they were buying such an item in similar circumstances and quantities.
- If the item is not a broadly distributed commercial product, then the District's pricing objective is to achieve the same terms as that of the Merchant's most favored customer if possible.
- 11.6.2** These purchases are to be distributed equitably among qualified Merchants by means of Merchant rotation. If practical, other than the previous Merchant should be solicited when placing repeat orders.

11.7 A reasonable number of sources must be solicited (at least three) for purchases over \$2,500. If practical, two of these sources shall not have been previously solicited. If merchants furnish standing price quotations or catalog prices on a recurring basis, verifying the quotations or prices for individual purchases is not necessary, but the prices should be periodically confirmed as current. When determining the number of sources to solicit, consider (I) the nature of the item or service to be purchased and whether it is highly competitive, (ii) information from recent purchases of the same or similar item or service, (iii) the urgency of the purchase, (iv) the dollar value of the purchase, and (v) past experience concerning merchants' prices.

11.8 Cardholders are not required to document their purchases under \$2,500 with respect to competition or reasonableness of price unless (1) The District employee has reasonable basis to suspect or has other information to indicate the price may not be reasonable or (2) it is the purchase of an item for which no comparable pricing information is available.

The monthly invoice approval package transmitted to the approving official must contain an explanation of how price reasonableness was determined in those instances.

11.9 Oral Purchase Procedures

Oral procedures may be used to acquire supplies or services that can be described in sufficient detail so that the parties to the agreement have a clear understanding of what is being acquired; and a purchase order or contract is not required by either the Merchant or the District.

When placing a telephone order to be paid using the Purchase card, the cardholder will:

- (1) Notify the Merchant that the purchase is subject to state and local taxes.
- (2) Confirm that the Merchant is aware of all required District terms and conditions.
- (3) Confirm that the Merchant agrees to charge the purchase card when shipment is made so that receipt of the supplies may be certified on the monthly Statement of Account.
- (4) Instruct the Merchant to include the following information with the shipping documents or packing slip:
 - (i) Cardholder name and mail code;
 - (ii) Building number, room number, street address, city and state;
 - (iii) Cardholder telephone number;
 - (iv) The term: Purchase card;
 - (v) Purchase Request or Purchase Order Number.

This information will alert the receiving offices and the requisitioner that the supplies have been purchased with the purchase card.

A log should be used to document or record telephone purchase card orders of \$2,500 or less when competitive quotes are not solicited. If competitive quotes are solicited for purchases of \$2,500 or less, or if the purchase exceeds \$2,500 and therefore requires competition (Procurement staff only), the record shall be documented.

The documentation should be held until the monthly billing statement is received and then attached to the statement when it is submitted to the approving official.

11.10 Purchases Requiring the Issuance of a Written Order or Contract

If the Purchase card is used to pay for a purchase made by using one of the purchase order or contract forms, the Merchant should be provided the necessary information from the card orally, either in person or by telephone, and the statement "Payment to be made by purchase card" should be inserted on the form. Do not include specific information from the card on the purchase order. If the Merchant requires an order, an authorized Sponsoring Department form may be used. The Merchant is given its copy of the purchase order and the cardholder maintains a copy.

12.0 DOCUMENTATION, RECONCILIATION AND PAYMENT PROCEDURES:

12.1 Any time a purchase is made that will be paid using the card, whether it is done over the counter or by telephone, a document must be retained as proof of purchase. These documents will later be used to verify the purchases shown on the cardholder monthly statement.

(1) When a purchase is made over the counter, the cardholder is to obtain a customer copy of the charge slip, which will become the accountable document (make sure all carbons are destroyed).

(2) When making purchases by phone, the cardholder is to document the transaction on a log, annotate the PR, and attach any shipping documents associated with the order.

12.2 The contractor will provide and distribute three monthly statements within five working days after the end of the 30-day billing cycle.

(1) Cardholder - will receive a statement showing all purchases, credits and other data on transactions the cardholder has made in the 30-day billing cycle.

(2) Approving official - will receive a copy of all cardholder statements for which he/she has approving authority and a summary sheet for these statements.

(3) Controller's Office - will receive a statement providing summary data by cardholder and approving official.

12.3 At the end of each monthly billing cycle, the cardholder must reconcile the information on his/her statement. The cardholder must fill in the appropriate accounting classification in the accounting code block, if not the same as the Master Accounting Code, the organization or individual for whom the purchase was made, and a description, if not provided, for each purchase. The cardholder must then sign the statement, attach all supporting documentation and forward it to the approving official or designated alternate.

It is important that the cardholder check each purchase on the statement to verify the accuracy. If an item has been returned and a credit voucher received, the cardholder will verify that the credit is reflected on the statement. If purchased items and credits are not on the next monthly statement, the transaction documentation will be retained by the cardholder until the purchase or credit appears on the statement. If the purchase or credit does not appear on the next monthly statement, the cardholder or approving official must notify the Administrative Office Contact to resolve and reconcile the statement.

- 12.4** If for some reason the cardholder does not have documentation of the transaction to send with the statement, he/she must attach an explanation that includes a description of the item, date of purchase, merchant's name and why there is not supporting documentation.
- 12.5** The cardholder must sign the monthly statement and forward it to the approving official within five working days of receipt. If the cardholder cannot review the statement at the time that it is received, the approving official is responsible for reviewing and certifying the cardholder's statement. The approving official will go over the cardholder's statement with the cardholder upon his/her return.
- 12.6** The approving official is responsible for the following:
- (1) Supplying the appropriate financial management office with the date services provided by the contractor were received and the date services were accepted. The date services were received will be the last day of the monthly billing cycle for the contractor. The date services were accepted will be the date the approving official signs the reverse side of the statement of account. If the approving official takes more than seven calendar days to accept the services, acceptance (for determining payment due date for compliance with prompt payment regulations only) will be deemed to occur seven calendar days after receipt of the services. If any purchased items have not been received or accepted by the time the statement is received, the items should be disputed using the procedures in paragraph 13, in order to prevent payment delays. It is critical that this information be supplied in order to avoid late payment penalties.
 - (2) Certifying and signing monthly cardholder-signed statements and summary statements;
 - (3) Forwarding signed cardholder statements and finance copies of receiving reports and supporting documents to the District's Controller's office for payment.
 - (4) Forwarding monthly summary statements, and the cardholder statements to the District Controller's office in time to be received within 15 working days of receipt by the approving official to avoid late payment penalties;
 - (5) Retaining copies of summary statements and fund certification, solicitation and award documentation as supporting documentation on purchases. Records retention and disposition procedures in BART's Procurement Manual, Chapter V, should be followed for documentation of purchases paid for using the purchase card.

13.0 BILLING ERRORS AND DISPUTES:

- 13.1** If a cardholder receives a statement that lists a transaction for merchandise that has not been received, the cardholder (or the approving official) must first attempt to resolve the issue with the Merchant. Generally speaking, this will mean that the bill gets paid in full, including the disputed charge and the merchant credit will clear in the following billing cycle. This is somewhat of a departure from the normal business practices of the District. The reason is the administrative effort required on the part of the Contractor, Procurement department and Controller's office to track disputed items. (See also 11.3.1 and 11.3.2 of this Procedure requiring Sponsoring departments to conduct business only with those merchants that offer full refunds or exchanges.)

In those instances where these procedures are not effective, Sponsoring Departments will notify Procurement Administration and complete the Cardholder Questioned item form. The contractor will credit the transaction until the dispute is resolved. In addition, a copy of the form must be attached to the cardholder's monthly statement and sent to the Controller's office.

- 13.2** If items purchased with the card are found to be defective, the cardholder has the responsibility to obtain replacement or correction of the item as soon as possible using the same procedures in Section 13.1 above. (See also 11.3.1 and 11.3.2 of this Procedure requiring Sponsoring departments to conduct business only with those merchants that offer full refunds or exchanges.)

If the merchant refuses to replace or correct the faulty item, then the purchase of the item will be considered in dispute. Items in dispute are handled in the same manner as billing errors.

- 13.3** If items purchased with the card don't include the appropriate amount of sales tax, the Sponsoring Department will communicate to the Controller's office with the monthly billing that the sales tax needs to be accrued for this item.

14.0 CONTACT WITH THE CONTRACTOR

The contractor should be contacted only to report a LOST OR STOLEN card using the telephone numbers given below in Section 15.0. All other questions should be directed to either Procurement Administration or the Controller's office.

15.0 LOST OR STOLEN CARDS

- 15.1** If the card is lost or stolen, it is important that the cardholder immediately notify Rocky Mountain BankCard System, Inc., at the following numbers:

(1) 24 hours a day, 7 days a week (Ask for I.M.P.A.C. customer service)

(A) 1-800-227-6736

(2) Automated authorization service number for use by merchants only

(A) 1 - 800 - 525 - 5093

- 15.2** The cardholder must also notify the approving official of the lost or stolen card within one workday after discovering the card missing. The approving official must also notify BART Police at the same time they receive notice.
- 15.3** The approving official shall submit a written report to Procurement Administration within five workdays. The report will include:
- (1) the card number
 - (2) the cardholder's complete name
 - (3) the date and location of the loss
 - (4) the date reported to BART police
 - (5) date and time the contractor was notified
 - (6) any purchase(s) made on the day the card was lost/stolen
 - (7) any other pertinent information
- 15.4** A card that is subsequently found by the cardholder after being reported lost or stolen will be cut in half and given to his/her approving official. The approving official will complete the destruction notice and forward the notice to Procurement Administration and BART Police.

16.0 CARD SECURITY

It is the cardholder's responsibility to safeguard the purchase card and account number at all times. The cardholder must not allow anyone to use his/her card or account number. A violation of this trust will require that the card be withdrawn from the cardholder with the possibility of subsequent disciplinary action.

17.0 SEPARATION OF CARDHOLDER

Upon separation of a cardholder, the cardholder must surrender the card to his/her approving official who will complete the destruction notice and forward the notice to Procurement Administration.

18.0 TRANSFER OF CARDHOLDER TO ANOTHER APPROVING OFFICIAL

If a cardholder is transferred to another Department or Division with a different approving official, the new approving official must determine if the employee will continue to be a cardholder within his/her Department or Division. If it is determined that the card should be kept by the cardholder, the master file can be changed by requesting, in writing, that Procurement Administration have the contractor add the cardholder to the new approving official's responsibility and delete him/her from the old file without issuing a new card.

19.0 UNAUTHORIZED PURCHASES OR CARELESS USE OF THE PURCHASE CARD

A cardholder who makes unauthorized purchases or carelessly uses the card may be liable to BART for the total dollar amount of unauthorized purchases made in connection with the misuse or negligence. Also, the cardholder may be subjected to disciplinary action for unauthorized or careless use.

BART will be liable for the use of Purchase cards by authorized users (cardholders)

APPENDIX B.6**PRENEGOTIATION POSITION****PROFESSIONAL ARCHITECTURAL/ENGINEERING DESIGN SERVICES
ADDICKS PARK & RIDE LOT SECOND EXPANSION
REQUEST FOR PROPOSAL 94A072P**

Date Prepared: July 28, 1994

Purpose and Background: The purpose of this document is to establish a Prenegotiation Position with respect to the Consultant's proposal for design of the Addicks Park and Ride Lot Second Expansion. On December 20, 1993, METRO Board Resolution No. 93-213 was passed authorizing and directing the General Manager to negotiate, execute and deliver a Contract with _____ for architectural/ engineering design of the Addicks Park and Ride Lot Second Expansion.

Scope of Services: The proposed Consultant shall perform preliminary architectural-engineering design (Phase I) and final architectural-engineering design of the Second Expansion of the Addicks Park & Ride (Phase II) and design support services during construction. It is currently intended that a firm fixed price Contract be negotiated for providing the required design services and that a not-to-exceed amount and unit rates be negotiated for the required design support services during construction.

Request for Proposal: A Request For Proposal No. 94A072P was subsequently issued to _____ On January 14, 1994. During the proposal period, _____ was requested to consider three (3) alternatives for the pedestrian crossing from the expansion facility to the existing facility: an at-grade crossing, an overhead crossing, and an underground crossing. Their initial proposal was received January 31, 1994. Subsequent to receipt of the Consultant's initial proposal, it was decided that the Consultant would ultimately be directed to perform to the "Underground Crossing" Alternative, and therefore, only this alternative was considered in the computation of this Prenegotiation Position. Additional information was required and was requested with respect to their proposal for an underground crossing and this was received on March 21, 1994.

Proposal: The Consultant's firm fixed price proposal for design of the facility with an underground pedestrian crossing was \$302,095.00 plus a Not-to-Exceed allowance of \$45,000.00 for design support services during construction, for a total Not-to-Exceed \$347,095.00. Please see Attachment "A" for a summary breakdown of the Consultant's proposal for this alternative.

METRO Estimate: The Contract Acquisition Request (CAR) contained the Project Manager's initial estimate based on an at-grade or overhead crossing. The Project Manager subsequently prepared an estimate of \$289,000.00 for design of the facility with an underground pedestrian crossing plus a Not-to-Exceed allowance of \$45,000.00 for design support services during construction, for a total Not-to-Exceed \$334,000.00. For a Discipline comparison of the Project Manager's revised estimate with the Consultant's proposal, please see Attachment "B".

Audit: On February 1, 1994, an audit of the Consultant's payroll and overhead rates was requested. The verbal audit results were received on February 21, 1994, as requested. The Audit-supported overhead rate for the Consultant was determined to be 133.68% versus the Consultant's proposed rate of 171%. Audit disallowed that portion of the overhead attributable to _____'s corporate headquarters. The audit of the Consultant's payroll determined that the majority of the Consultant's actual direct labor rates were equal to or greater than those proposed.

An audit was also requested for _____, the structural design subconsultant. _____ has performed almost \$200,000 of work for METRO without an audit. The verbal audit results were received on or about February 25, 1994. Audit determined that _____'s proposed overhead rate of 172.7% was not substantiated by any documentation and that therefore an approximate industry average overhead rate of 150% was used by the Contract Administrator to develop his position. Audit also determined that _____'s Civil Engineer was a contract employee, for which, in accordance with Audit's interpretation, is not entitled to overhead and profit.

_____, the Civil subconsultant; _____, the Landscaping subconsultant; _____, the Geotechnical subconsultant; and _____, the Surveying subconsultant, have all been audited in the recent past in conjunction with other contracts and therefore they were not audited for this procurement. For the most part, each of these subconsultants' proposals conformed to available audit information, with the exception of the base design profit margin proposed by _____, which exceeded Audit allowable profit of 10% by an additional 5%. This, as well as a portion of _____'s reimbursables, were regarded as unallowable or excessive, respectively, by the Contract Administrator.

Please see Attachment "C" for a Summary breakdown reflecting all Audit/Contract Administrator derived disallowances with respect to the Consultant's proposal. For a Discipline comparison of the Contract Administrator's computations with respect to the Consultant's proposal please see Attachment "D".

METRO'S Prenegotiation Position: The METRO Project Manager and Contract Administrator met to discuss their two (2) positions of from \$289,000.00 to \$279,472.00, respectively, for design, when compared with the Consultant's proposal of \$302,593.00. Both were agreed that the Not-to-Exceed figure of \$45,000.00 for design support services during construction, as proposed by the Consultant, was adequate and appropriate for the Project. They ultimately agreed to a position totaling \$282,920.00 for design.

This position represents a slight reduction in the Contract Administrator's position with respect to _____'s proposal for their own services, to allow for somewhat excessive reimbursables and ultimately conform to the Project Manager's revised estimate; a compromise position with respect to _____'s proposal for Civil Services; a compromise position with respect to _____'s proposal for Structural Services; to allow for additional man hours deemed necessary by the Project Manager; and a slight reduction in both positions with regard to _____'s proposal for Landscaping, to make their figure more appropriately comparative

with that of the other participants. Both agreed to accept ' proposal for Geotechnical Services and _____'s proposal for Surveying exactly as submitted. For a Discipline comparison of the Negotiation Position agreed to by the Project Manager and Contract Administrator, as compared with the Consultant's proposal, please see Attachment "E".

Conclusion: Based on the information provided above, the METRO negotiation position of \$282,920.00 for the design of the Addicks Park & Ride Lot Second Expansion plus a Not-to-Exceed allowance of \$45,000.00 for design support services during construction, for a Not-to-Exceed total of \$327,920.00 is deemed to be fair and reasonable. Negotiations will commence immediately upon approval of this plan.

Contracts Administrator

Project Manager

Division Director

Manager of Contracts

**APPENDIX B.7
OFFER AND ACCEPTANCE FORM**

1.2 OFFER

The following is an example Offer/Award form to be modified as appropriate by the Procuring Agency and included in the RFP.

Offeror shall complete the following form and include same in the price proposal.

OFFER

By execution below Offeror hereby offers to furnish equipment and services as specified in (*Procuring Agency insert name*) Request for Proposals No. (*Procuring Agency insert RFP Number*) including the General Provisions (Section 2), Quality Assurance Provisions (Section 3), Warranty Provisions (Section 4) and Technical Specifications (Section 5), therein.

Offeror: _____

Name

Street Address

City, State, Zip

Signature of Authorized Signer

Title

Phone

1.3 AWARD

NOTICE OF AWARD

By execution below, Procuring Agency accepts Offer as indicated above.

Contracting Officer: _____

Signature

Date of Award: _____

APPENDIX B.9**MEMORANDUM OF NEGOTIATIONS**

Date Prepared: July 28, 1994

Consultant: DEB Architects

Contract No.: A30678C

Project Title: Final Design Services for the Central Control Facility

Project Description: Provide final architectural/engineering design services and design support services during construction of the Central Control Facility in accordance with METRO's Scope of Services.

Contract Value:	Lump Sum (L.S.) Facility Design	\$484,023
	L.S. Furnishings	\$ 22,452
	Total L.S. Final Design	\$506,475
	Design Support Services (NTE)	\$115,000
	Total NTE	\$621,475

CAR Amount: \$490,000 (Order of Magnitude)

Source of Funds: 50% Federal/50% METRO

Contract Type: Firm Fixed Lump Sum Price (FFLSP) for final architectural/engineering design services, with Firm Fixed Unit Prices (FFUP) for design support services during construction, for a total Contract Not-to-exceed (NTE) Price.

Performance Period: The final architectural/engineering design schedule is for a total of one hundred twenty (120) calendar days from the Notice-to-proceed, not counting METRO review time. Design support services during construction will begin upon receipt of another separate Notice-to-proceed and continue throughout construction, as required by the METRO Project Manager.

Insurance: See Proposed Contract Article 23, "Consultant's Insurance".

DBE Participation: The Request for Proposal (RFP) specified 21% in accordance with the Contract Acquisition Request (CAR). Consultant currently intends to utilize D.E.F. Associates, Inc. (BF) for structural design, at 9.63% of the total estimated not-to-exceed price; TAB Engineering Company (AM) for civil engineering and survey, at 9.34%; and CDE Associates, Inc. (CF) for landscaping, at 2.92%; for a total of 21.89% of the total estimated not-to-exceed price for DBE participation.

Selection Process and Criteria: A-E Qualifications. See Summary of Procurement dated for information regarding Consultant selection.

Authorization: The authorization for this Contract is Contract Acquisition Request (CAR) AG2141R93172 and METRO Board Authorization 92-90, dated June 25, 1993, which authorizes design of the Central Control Facility. Preliminary architectural/engineering design for this project was accomplished under Contract No. A30132C. The authorization for that Contract was CAR AL0213P92101 and the METRO Board Authorization referenced above.

Cost/Price Analysis-Negotiation Results:

Subsequent to the Board Action described above and receipt of a CAR and Scope of Services for final architectural/engineering design of this project on June 18, 1993, Request for Proposal (RFP) No. 93A390P for these services was prepared and transmitted to the Consultant on June 29, 1993, with a due date of July 12, 1993. The Consultant's initial proposal (attached) was received on July 15, 1993. The proposal was for a firm lump sum of \$629,151 (10,299 man-hours) for facility design and \$22,484 (438 man-hours) for furnishings design, for a total firm lump sum of \$651,635 (10,737 man-hours) for final design, and apparently did not address itself to design support services during construction (See Attachment "A" for a Summary of this Proposal, as well as Attachment "A.1" for a Detailed Summary of the Consultant's Proposal).

Prior to being furnished the Consultant's initial proposal for final architectural/engineering design, the Project Manager furnished Contracts a project management man-hour estimate. The Project Manager's man-hour estimate (attached) was received on August 2, 1993. The Project Manager's (and resident staff specialists') estimate was for a firm lump sum of \$683,514 (12,896 man-hours) for facility design and \$22,640 (424 man-hours) for furnishings design, for a total firm lump sum of \$706,154 (13,320 man-hours) for final design, with a Not-to-Exceed (NTE) total of \$45,000 (800 man-hours) for design support services during construction, for a total NTE of \$751,154 (14,120 man-hours) (See Attachment "B" for a Summary of this Project Manager's Estimate, as well as Attachment "B.1" for a Detailed Summary of the Project Manager's Estimate). Upon receipt of the proposal, a METRO prenegotiation position of NTE \$635,000.00 was developed (See Attachment B.2).

Upon review, the Consultant's proposal for furnishings design was accepted as submitted, subject to audit disallowances, inasmuch as it conformed so closely to the Project Manager's Estimate. However, there was some concern that some of the Consultant's subconsultants had not included all required services in their respective proposals for facility design (See Attachment "C" for a Summary Comparison of the Consultant's initial proposal for facility design with the Project Manager's estimate for facility design) and there was also the question of design support services during construction, which had not been specifically addressed in the Consultant's proposal, but which appeared to be included in certain subconsultant proposals. It was decided that a Scoping meeting should be held to discuss the Consultant's proposal for facility design. The Scoping meeting was held in the AGM for Capital and Long Range Planning's Conference Room on the

21st floor at 1201 Louisiana on Thursday, August 5, 1993, at 10:00 a.m., with the following participants in attendance:

(Full Time)

ABC

R. Case

METRO

Ed Fanning
Jim Schmid

(Part Time)

TVC

Petula Clark
S. Caminski

Michael Williams

D.I.Y.

D. Morry

David Lentz

TSC

Tony Change
Roy Canoe

Hameed Merchant

TSY

Swimming Pool

Joe Misrahi
Sol Abdulla

At this meeting, all of the participants were advised that METRO intended to alter the Scope of Services to provide for drawings at 20th scale in lieu of 40th scale, so that the half sized drawings required for the project would be readable. All of the participants agreed that this would not be a problem, inasmuch as all drawings were being produced on CADD. At this meeting, Project Management satisfied itself that all major participants in the project, with the possible exception of the Civil/Traffic subconsultant, had properly estimated their work scopes (It was suggested that the Civil/Traffic subconsultant reduce their survey time and increase their traffic design time slightly and the need for some additional geotechnical borings were suggested to the Prime Architect and Civil/Traffic subconsultant). However, it was also determined that the Prime Architect, Structural subconsultant, and Landscaping subconsultant (as per their proposal), had included design support services during construction into their proposals for design of the facility. They were advised that the RFP had requested a separate NTE proposal for such services to be performed on an "as required" time and material basis, and were requested to submit such an NTE Proposal and reduce their design proposals accordingly. While ABC and XYZ had not included any such Design Support Services monies or time in their original proposals, ABC was asked to review and revise their proposal to reflect the revisions referenced

above, and XYZ was advised that, because of the risks associated with a lump sum proposal, they were entitled to a profit factor of 10%, in lieu of the 5% factor they initially proposed. ABC and XYZ had been limited to a 5% profit factor in the original Cost Plus Fixed Fee (CPFF) Contract for Preliminary Engineering, in light of their limited risk in the project, and XYZ had assumed that METRO simply would not accept a higher factor under any circumstances. DEB was also advised that their method of applying a 10% profit factor to their subconsultants, as well as themselves, constituted fee on top of fee, and as such was unacceptable to METRO. They were advised that METRO would, however, consider the addition of a reasonable number of appropriate man-hours for contract administration as an acceptable substitution for computation of fee in this fashion, and Morris agreed to restructure their Proposal accordingly. DEB ultimately agreed to revise and resubmit their entire proposal in accordance with the understandings reached at this meeting.

Their revised proposal for facility design and design support services during construction (attached) was received on August 11, 1993. This revised proposal was for a firm lump sum of \$500,129 (8,736 man-hours) for facility design, with an NTE total of \$150,304 (2,944 man-hours) for design support services during construction (See Attachment "D" for a Summary of the Consultant's revised proposal for facility design as well as Attachment "E" for a Summary Comparison of their initial proposal for facility design with their revised proposal for facility design; and Attachment "F" for a Summary of their NTE proposal for design support services during construction as well as Attachment "G" for a Summary Comparison of their NTE proposal for design support services during construction with the Project Manager's NTE estimate, as alluded to above).

Upon review, the Consultant's revised proposal for facility design was accepted as submitted, subject to audit disallowances, but the design support services NTE and man-hours were still significantly more than that originally estimated by the Project Manager. The Project Manager reevaluated design support service requirements for the project, and came up with a revised estimate (attached) NTE \$113,043 (1,708 man-hours); this figure was adopted as a negotiation position for such services; and DEB was advised of this position.

DEB's acceptable revised man-hour proposal for facility design was then subjected to METRO Audit and Contract Administrator disallowances. While no audits were requested for this particular procurement, the major participants, DEB, XYZ & Associates and ABC Engineering had already recently been audited by METRO in conjunction with the preliminary engineering contract referenced above, and those audit reports (attached) were utilized for computation of these disallowances. DEB's initial proposal had contained a 145% overhead factor, in lieu of their METRO audited overhead of 140.89%, and this had been questioned by Mr. Schmid during the Scoping Meeting referenced above. Mr. Case had replied that he had essentially employed it as a salary escalator, and inasmuch as its employment here rather than at the direct salary level would certainly net much less of an actual increase, this matter was not pursued further. However, other disallowances netted reductions in DEB's proposal and that of their Civil/Traffic subconsultant, XYZ, as well their Accessibility Consultant's computation of profit, for a total reduction of \$20,141, or 4.03%, from the Consultant's revised proposal of \$500,129, for a negotiation position of \$479,988 for facility design (See Attachment "H" for a Summary of the

Consultant's revised proposal for facility design, less Audit and Contract Administrator disallowances as well as Attachment "I" for a Summary Comparison of their revised proposal for facility design with their revised proposal with Audit and Contract Administrator disallowance applied.

DEB's original man-hour proposal for furnishings design was also subjected to METRO Audit and Contract Administrator disallowances, for a reduction of \$108, or 8.08%, from the Consultant's initial proposal of \$22,484, for a negotiation position of \$22,276 for furnishings design (See Attachment "I.1").

A negotiation meeting was held with DEB in the Real Estate Conference Room on the 19th floor at 1201 Louisiana on Monday, August 23, 1993, at 11:00 a.m., with the following participants in attendance:

DEB

METRO

Ed Fanning
Jim Schmid

At that meeting, DEB furnished a revised proposal NTE \$115,000 for design support services during construction, and this was accepted as submitted, inasmuch as it conformed closely to the Project Manager's revised estimate of \$113,043, as alluded to above.

DEB accepted the majority of METRO's Audit disallowances with regard to their revised proposal for facility design and furnishings design, with the exception of METRO's actual direct rate computation for DEB's principals. Mr. _____ advised that DEB's principals had had their pay rates restored to their 1992 rates (the principals had taken a voluntary pay cut effective January 1, 1993) subsequent to the audits referenced above, and therefore METRO's computations in that regard were incorrect. Mr. Schmid recomputed disallowances using the principals' original direct rates, and METRO and DEB ultimately agreed to the resultant reductions in their proposal, as well as that applied to the two (2) subconsultants under facility design. The resultant firm lump sum for facility design was \$484,023, a reduction of \$16,106, or 3.22%, from the Consultant's revised proposal of \$500,129 (See Attachment "K" , for a Summary of the Consultant's final proposal for facility design, as ultimately negotiated, as well as Attachment "K" for a Summary Comparison of their revised proposal for facility design with their final proposal, as ultimately negotiated). The resultant firm lump sum for furnishings design was \$22,452, a reduction of \$32, or .14%, from the Consultant's original furnishings design proposal (See Attachment "K.1").

The only items that remained to be negotiated were the rates for design support services during construction, inasmuch as Morris had not included any such proposed rates in their proposal(s). Mr. Schmid furnished Mr. _____ a "Proposed Contract Attachment "B," based upon DEB's and ABC's audited rates, as well as existing design support service rates for the remaining participants, and Mr. _____ accepted these, with the exception of the rate for DEB's

Principals, which were revised to take the aforementioned salary reinstatements into consideration.

Contract Articles (Terms and Conditions): The Consultant took no exception to the Contract Articles, and therefore the Proposed Contract Terms contained in the RFP have been incorporated into the Contract verbatim.

Summary and Recommendations: Based on cost/price analysis and negotiations, as called out in the Memorandum of Negotiations, the firm lump sum prices of \$484,023 for facility design and \$22,452 for furnishings design, for a total firm lump sum of \$506,475 for all final architectural-engineering design services; and an NTE of \$115,000 for design support services during Construction, for an overall Not-to-exceed price of \$621,475 for this proposed Contract are considered fair and reasonable.

Approval of this Contract with DEB Architects for the total lump sum price of \$506,475 for final design and an overall amount Not-to-exceed \$621,475 is therefore recommended.

Contracts Administrator

Project Manager

Division Director

Affirmative Action

Manager of Contracts

APPENDIX B.10
DISCLOSURE OF CONFLICTS OF INTEREST
(OCT 1994)

It is the Department of Transportation's (DOT) policy to award contracts to only those offerors whose objectivity is not impaired because of any related past, present, or planned interest, financial or otherwise, in organizations regulated by DOT or in organizations whose interests may be substantially affected by Departmental activities. Based on this policy:

(a) The offeror shall provide a statement in its proposal which describes in a concise manner all past, present or planned organizational, financial, contractual or other interest(s) with an organization regulated by DOT, or with an organization whose interests may be substantially affected by Departmental activities, and which is related to the work under this solicitation. The interest(s) described shall include those of the proposer, its affiliates, proposed consultants, proposed subcontractors and key personnel of any of the above. Past interest shall be limited to within one year of the date of the offeror's technical proposal. Key personnel shall include any person owning more than 20% interest in the offeror, and the offeror's corporate officers, its senior managers and any employee who is responsible for making a decision or taking an action on this contract where the decision or action can have an economic or other impact on the interests of a regulated or affected organization.

(b) The offeror shall describe in detail why it believes, in light of the interest(s) identified in (a) above, that performance of the proposed contract can be accomplished in an impartial and objective manner.

(c) In the absence of any relevant interest identified in (a) above, the offeror shall submit in its proposal a statement certifying that to its best knowledge and belief no affiliation exists relevant to possible conflicts of interest. The offeror must obtain the same information from potential subcontractors prior to award of a subcontract.

(d) The Contracting Officer will review the statement submitted and may require additional relevant information from the offeror. All such information, and any other relevant information known to DOT, will be used to determine whether an award to the offeror may create a conflict of interest. If any such conflict of interest is found to exist, the Contracting Officer may (1) disqualify the offeror, or (2) determine that it is otherwise in the best interest of the United States to contract with the offeror and include appropriate provisions to mitigate or avoid such conflict in the contract awarded.

(e) The refusal to provide the disclosure or representation, or any additional information required, may result in disqualification of the offeror for award. If nondisclosure or misrepresentation is discovered after award, the resulting contract may be terminated. If after award the Contractor discovers a conflict of interest with respect to the contract awarded as a result of this solicitation, which could not reasonably have been known prior to award, an immediate and full disclosure shall be made in writing to the Contracting Officer. The disclosure shall include a full description of the conflict, a description of the action the contractor has taken, or proposes to take, to avoid or mitigate such conflict. The Contracting Officer may, however, terminate the contract for convenience if he or she deems that termination is in the best interest of the Government.

APPENDIX B.11

NEW YORK CITY TRANSIT AUTHORITY

Division of Materiel

Procurement Sub-Division

Schedule J

BIDDER'S QUALIFICATION QUESTIONNAIRE

PART I - INSTRUCTIONS

1.
 - a. All Bidders/Proposers submitting a Bid/Proposal for public work contracts (IFB & RFP); personal service (including Architectural and Engineering) contracts (RFP); RFPs for supply, material, equipment (including transit vehicles and rolling stock); RFPs for miscellaneous procurement and service contracts; non-competitive/sole source contracts (including preferred source and existing public contracts) equal to or in excess of \$10,000 are to complete and submit Parts I, II, III, IV and VIII with their Bid or Proposal.
 - b. **PUBLIC WORK CONTRACTS (IFB & RFP)**

If this Questionnaire is submitted in response to an Information for Bidders (IFB), the apparent low bidder will receive written notification requesting submission of Parts V, VI and VII. If this Questionnaire is submitted in response to a Request for Proposal (RFP), and the proposal submitted equals or exceeds \$25,000 all Proposers are to complete and submit all Parts of the Questionnaire with their Proposal.
 - c. **PERSONAL SERVICE INCLUDING ARCHITECTURAL AND ENGINEERING CONTRACTS (RFP)**

Where the proposal submitted equals or exceeds \$20,000 for a personal service (consultant) contract, all Proposers are to complete and submit all Parts of the questionnaire with their Proposal.
 - d. **RFPs FOR SUPPLY, MATERIAL, OR EQUIPMENT (INCLUDING TRANSIT VEHICLES AND ROLLING STOCK), AND MISCELLANEOUS PROCUREMENT AND SERVICE CONTRACTS**

Where the proposal submitted equals or exceeds \$250,000 for supplies, materials, or equipment (including transit vehicles and rolling stock), and miscellaneous procurement and service contracts all Proposers are to complete and submit all Parts of the questionnaire with their Proposal.
 - e. **NON-COMPETITIVE/SOLE SOURCE CONTRACTS (INCLUDING PREFERRED SOURCE AND EXISTING PUBLIC CONTRACTS)**

Where the proposal submitted equals or exceeds \$25,000 for non-competitive public work contracts, \$20,000 for non-competitive personal service (Consultant) contracts, and \$250,000 for all other non-competitive contracts, all Proposers are to complete and submit all Parts of the questionnaire with their Proposal.
2. Please state "not applicable" in questions clearly not applicable to Bidder/Proposer in connection with this solicitation. Do not omit any question. If any representation is not

accurate and complete at the time Bidder/Proposer signs this Questionnaire, Bidder/Proposer must, as part of its Bid/Proposal, identify the provision and explain the reason in detail in the space provided below. If additional space is needed, add additional sheet(s) to this Questionnaire. If this space is left blank, Bidder/Proposer shall be deemed to have represented and warranted the accuracy and completeness of the representations on this Questionnaire:

- 3. All information must be legible.
- 4. Completed Questionnaire must be sworn to by a partner (if partnership), a duly authorized officer or individual (if a corporation), or a principal (if a sole proprietorship).
- 5. The term "Proposer" includes the term "Bidder" and also refers to the firm awarded the Contract. The term "Proposal" includes the term "Bid".
- 6. If during the performance of this Contract, either of the following occurs, Bidder shall promptly give notice in writing of the situation to the Authority's Chief Procurement Officer, and therefore cooperate with the Authority's review and investigation of such information.
 - i) Proposer has reason to believe that any representation or answer to any question contained in this Questionnaire was not accurate or complete at the time this Questionnaire was signed; or
 - ii) events occur or circumstances changes so that an answer to any question in Part IV is no longer accurate or complete.

In the Authority's sole discretion, the following shall constitute grounds for the Authority to take remedial action up to and including immediate termination of the Contract for convenience without payment for profit and overhead for work not performed if: i) Proposer fails to notify the Chief Procurement Officer as required by "6" above: ii) Proposer fails to cooperate with the Authority's request for additional information as required by "6" above.

- 7. The Authority reserves the right to inquire further with respect to Proposer's responses; and Proposer consents to such further inquiry and agrees to furnish all relevant documents and information as requested by the Authority. Any response to this document prior or subsequent to Proposer's Proposal which is or may be construed as unfavorable to Proposer will not necessarily automatically result in a negative finding on the question of

Proposer's responsibility or a decision to terminate the Contract if it is awarded to Proposer.

PART II - IDENTITY OF PROPOSER

1. Proposer's Full Legal Name: _____

2. The Proposer represents that it operates as the following form of legal entity: (Check whichever applies and fill in any appropriate blanks.)

an individual or sole proprietorship

a general partnership

a limited partnership

a joint venture consisting of: _____
and _____
(List all joint venturers on a separate sheet if this space is inadequate.)

a non-profit organization

a corporation organized or incorporated under the laws of the following state or country:

_____ on the following date: _____

3. Proposer's federal taxpayer identification number: _____

4. Proposer's legal address: _____

Telephone Number: (____) _____ Fax Number: (____) _____

5. Proposer's local or authorized point of contract address:

Name: _____ Title: _____

Address: _____

Telephone Number: (____) _____ Fax Number: (____) _____

- 6. a. If Proposer is a corporation, has a Certificate of Incorporation been previously filed with the New York City Transit Authority?
YES NO If answer is "NO," attach a certified copy.
- b. Attach a certified copy of the By-Laws and Resolution of the Corporation giving the names and titles of the corporate officers other than President, as well as non-officer employees, who are authorized to sign contracts, bonds, bills of sale and other legal instruments in connection with the Contract, if the same have not been previously filed.
- c. If a foreign corporation, has proof of authority to transact business in the State of New York been previously filed with the New York City Transit Authority?
YES NO If answer is "NO," attach a certified copy.

In the event that any of Proposer's previous submissions to the Transit Authority in response to the above (questions a-c) no longer represent the Proposer's current corporate status, Proposer must attach a certified copy of any documents amending its previous submissions.

- 7. a. How long has the Proposer been in business?
 - b. Have Proposer's major shareholders, officers or principals been in business under another name? If so, identify name and dates used.
 - c. How many years experience as a prime contractor/consultant?

 - d. How many years experience as a subcontractor/subconsultant?

8. List below the names, business addresses, titles, and telephone numbers of the following people: if a corporation, identify the president, executive officers, and any other officers directly responsible for this Proposal; if a partnership, identify the partners directly responsible for this Proposal; or, if another form of business entity, identify the principals directly responsible for this Proposal.

<u>Name</u>	<u>Address</u>	<u>Title</u>	<u>Telephone No.</u>

9. If your firm considers itself to be an MBE, WBE or DBE, then within the past three years has the Proposer had any MBE, WBE, or DBE certification (or application for such certification) revoked or, if you made application for such certification during such period was same denied?

YES NO If answer is "NO," attach a certified copy.

PART III-PROPOSER'S REPRESENTATIONS

1. By submission of this Proposal, the undersigned and each person signing on behalf of the undersigned certifies, and in the case of a joint proposal each party thereto certifies, as to its own organization, as required by Section 2878 of the Public Authorities Law of the State of New York, under penalty of perjury, that to the best of its knowledge and belief:

- a. the prices in this Proposal have been arrived at independently without collusion, consultation, communication, or agreement for the purpose of restricting competition, as to any matter relating to such prices with any other proposer or with any competitor;
- b. unless otherwise required by law, the prices which have been quoted in this Proposal have not been knowingly disclosed by the Proposer and will not knowingly be disclosed by the undersigned prior to opening, directly or indirectly, to any other proposer or to any competitor prior to the closing date for proposals;
- c. no attempt has been or will be made by the Proposer to induce any other person, partnership or corporation to submit or not to submit a proposal for the purpose of restricting competition;

A Proposal shall not be considered for award nor shall any award be made where a, b, and c, above, have not been complied with provided, however, that if in any case the Proposer cannot make the foregoing certification, the Proposer shall so state and shall furnish with the Proposal a signed and notarized statement which sets forth in detail the reasons therefor. Where a, b, and c, above, have not been complied with, the Proposal shall not be considered for award nor shall any award be made unless the Vice President, Division of Materiel of the Authority, or his/her designee, determines that such disclosure was not made for the purpose of restricting competition.

The fact that a Proposer (i) has published price lists, rates, or tariffs covering items being procured; (ii) has informed prospective customers of proposed or pending publication of new or revised price lists for such items; or (iii) has sold the same items to other customers at the same prices being proposed, does not constitute, without more, a disclosure within the meaning of a, b, and c above

2. Statement of no-conflict of interest

- a. No appointed or elected official, member or other officer or employee of the City or State of New York, or of the Metropolitan Transportation Authority ("MTA"), or MTA's affiliates and subsidiaries which consist of the New York City Transit Authority, Manhattan & Bronx Surface Transit Operating Authority, Staten Island Rapid Transit Operating Authority, Metro-North Commuter Railroad, Long Island Rail Road, Triborough Bridge and Tunnel Authority, Metropolitan Suburban Bus Authority, and Metropolitan Transportation Authority Card Company: i) is interested directly or indirectly, in any manner whatsoever in or in the performance of the Contract or in the supplies, work or business to which it relates or in any portion of the profits thereof; or ii) has been or will be offered or given any tangible consideration in connection with this Proposal/Contract.
- b. Proposer covenants that neither Proposer nor, to the best of the Proposer's knowledge after diligent inquiry, any director, officer, owner or employee of the Proposer has any interest nor shall they acquire any interest, directly or indirectly, which would conflict in any manner or degree with the faithful performance of the Contract hereunder.
- c. In the event Proposer has no prior knowledge of a conflict of interest as set forth in "a" and "b" above and hereafter acquires information which indicates that there may be an actual or apparent violation of any of the above, Proposer shall promptly bring such information to the attention of the Authority's Chief Procurement Officer, Proposer shall thereafter cooperate with the Authority's review and investigation of such information, and comply with any instruction it receives from the Chief Procurement Officer in regard to remedying the situation.

3. The following statements apply to any proposal or contract between Proposer and the City or State of New York, any other state, any public authority or other public entity, the United States government, the Metropolitan Transportation Authority ("MTA"), and MTA's affiliates and subsidiaries which are the New York City Transit Authority, Manhattan & Bronx Surface Transit Operating Authority, Staten Island Rapid Transit Operating Authority, Metro-North Commuter Railroad, Long Island Rail Road, Triborough Bridge and Tunnel Authority, Metropolitan Suburban Bus Authority, and Metropolitan Transportation Authority Card Company.

a. Statements b, c, d, e, f and g below also apply to i) Proposer's parent, subsidiaries and affiliates (if any), ii) any joint venture (including its individual members and any other form of partnership (including its individual members) which includes Proposer or Proposer's parent, subsidiaries, or affiliates; iii) Proposer's directors, officers, principals, and managerial employees and any person or entity with a 10% or more interest in Proposer; iv) any legal entity controlled, or 10% or more of which is owned, by Proposer, or by any director, officer, principal or managerial employee of Proposer, or by any person or entity with a 10% or more interest in Proposer; or v) any parent, subsidiary or affiliate of any legal entity controlled, or 10% or more of which is owned, by Proposer, or by any director, officer, principal or managerial employee of Proposer, or any person or entity with a 10 % or more interest in Proposer.

b. Has the Proposer been declared not responsible. (Check "YES" or "NO," as appropriate.)

YES NO

c. Has the Proposer been debarred, suspended, proposed for debarment, declared ineligible, voluntarily excluded, or otherwise disqualified from bidding, proposing, or contracting. (Check "YES" or "NO," as appropriate.)

YES NO

d. Has the Proposer been a defaulter, as principal, surety or otherwise. (Check "YES" or "NO," as appropriate.)

YES NO

- e. Has the government or other public entity requested or required enforcement of any of its rights under a surety agreement on the basis of a Proposer default or in lieu of declaring Proposer in default. (Check "YES" or "NO," as appropriate.)

YES NO

- f. Is the Proposer in arrears upon a contract or debt. (Check "YES" or "NO," as appropriate)

YES NO

- g. Are there any proceedings pending relating to Proposer's responsibility, debarment, suspension, voluntarily exclusion or qualification to receive a public contract. (Check "YES" or "NO". as appropriate.)

YES NO

- h. List the name and business address of each person or legal entity which has a 10% or more ownership or control interest in Proposer (attach additional pages as needed).

- i. Explain any "YES" answers to b, c, d, e, f and g in the space provided below (attach additional pages as needed).

PART IV - QUESTIONS WHICH MUST BE ANSWERED "YES" OR "NO"

(In the event of a "YES," the Authority reserves the right to inquire further with respect thereto.)

To the best of your knowledge after diligent inquiry, in connection with the business of proposer or any other firm which is related to Proposer by any degree of common ownership, control, or otherwise, do any of the following statements apply to: i) Proposer; ii) Proposer's parent; iii) any Proposer subsidiary or affiliate; iv) any joint venture (including its individual members) or any other partnership (including its individual members) which includes Proposer or Proposer's parent, subsidiaries, or affiliates, v) any legal entity, or parent, subsidiary or affiliate of any legal entity, controlled, or 10% or more of which is owned, by Proposer, or by any director, officer, principal or managerial employee of Proposer, or by any person or entity with a 10% or more interest in Proposer, or vi) any person who is a director, officer, principal, or, managerial employee, or person or entity with a 10% or more interest in any of the aforesaid:

1. Has been convicted by a plea or verdict of guilty of, or pleaded nolo contendere to, a misdemeanor or felony in any federal, state or local court. (Check "YES" or "NO," as appropriate.)

YES NO

2. Have pending any state or federal grand jury or court an indictment or information for the commission of a crime which has not been favorably terminated. (Check "YES" or "NO," as appropriate.)

YES NO

3. Is the subject of any pending investigation by any grand jury, commission, committee or other entity or agency or authority of any state or the federal government in connection with the commission of a crime. (Check "YES" or "No," as appropriate.)

YES NO

4. Is currently disqualified from selling or submitting bids/proposals to or receiving awards from or entering into any contracts with any federal, state or local governmental entity, any public authority or any public entity (Check "YES" or "NO," as appropriate.)

YES NO

5. Within the past five years, has refused to testify or to answer any question concerning a bid or contract with any federal, state, or local governmental entity, any public authority or other public entity when called before a grand jury or other committee, agency or forum which is empowered to compel the attendance of witnesses and examine them under oath, upon being advised that neither the person's statement nor any information or evidence derived from such statement will be used against that person in any subsequent criminal proceeding. (Check "YES" or "NO" as appropriate.)

YES NO

6. Is currently disqualified from selling or submitting a bid to, or receiving an award from, or entering into any contract with any public entity or public authority within the State of New York because, within the past five years, such entity or person refused to testify or to answer any relevant question concerning a transaction or contract with the State of New York, any political subdivision of the State of New York, or a public authority or a public department, agency or official of the State of New York or of a political subdivision of the State of New York, when called before a grand jury or other state or local department, commission or agency which is empowered to compel the attendance of witnesses and examine them under oath. upon being advised that neither that person's statement nor any information or evidence derived from such statement will be used against that person in any subsequent criminal proceeding, (Check "YES" or "NO," as appropriate.)

YES NO

7. Has within a three year period preceding this Proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property. (Check "YES" or "NO," as appropriate.)

YES NO

8. Explain any "YES" answers to 1, 2, 3, 4, 5, 6 or 7, in the space provided below (attach additional pages as needed).

PART V-TECHNICAL

- 1. List the name, title and business address of each director and principal officer of Proposer.

- 2. Number of employees: _____ including _____ employees in the Greater New York Metropolitan Area.

- 3. Does the Proposer have any outstanding bids or proposals for contracts (i.e., bids or proposals pending where no contract has yet been awarded) with the State or City of New York, or any other public authority of the State of New York, or the Metropolitan Transportation Authority ("MTA"), and MTA's affiliates and subsidiaries which are the New York City Transit Authority, Manhattan & Bronx Surface Transit Operating Authority, Staten Island Rapid Transit Operating Authority, Metro-North Commuter Railroad, Long Island Rail Road, Triborough Bridge and Tunnel Authority, Metropolitan Suburban Bus Authority, and Metropolitan Transportation Authority Card Company? If none, state "None". If yes, please list them and provide the name of the requesting agency, the contract number, a brief description of the work effort and the status of the bid or proposal. Indicate if the bid/proposal was submitted by the Bidder as prime contractor or joint venture.

- 4. Has the Proposer been awarded any contracts within the last three years by the State or City of New York, or any other public authority of the State of New York, or the Metropolitan Transportation Authority ("MTA"), and MTA's affiliates and subsidiaries which are the New York City Transit Authority, Manhattan & Bronx Surface Transit Operating Authority, Staten Island Rapid Transit Operating Authority, Metro-North Commuter Railroad, Long Island Rail Road, Triborough Bridge and Tunnel Authority, Metropolitan Suburban Bus Authority, and Metropolitan Transportation Authority Card Company? If none, state "None". If yes, describe those contracts beginning with the

most recent. State the name of the contracting entity; give a brief description of the contract and the contract number; state the contract period, the status of the contract, and the name, address, and telephone number of a contact person at the agency. Indicate if award was made to Proposer as prime contractor or joint venture. Proposer need not provide more than six such descriptions.

5. Does the Proposer have any current private sector projects? If none, state "None." If yes, provide name and address of owner, a brief description of work, status of contracts and name, address and telephone number of contact person as to each, beginning with the most recent. Indicate if Proposer is acting as prime contractor or joint venture. Proposers need not provide more than six such descriptions.

6. For each of the following contracts, provide a brief description of the work performed, the contract number, the dollar amount at award and at completion, date completed, and the name and telephone number of the owner's representative.

a. Each contract completed during the last three years or, if less than three contracts have been completed during the last three years, list the last three contracts completed.

b. Each contract completed during the last three years or, if less than three contracts have been completed during the last three years, list the last three contracts completed, for which liquidated damages or penalty provisions were assessed against you for failure to complete the work on time or for any other reason.

- 7. List each contract which, during the last three years, the person/entity contracting with you: i) terminated for default; ii) sued to compel performance; iii) sued to recover damages, including, without limitation, upon alleged breach of contract, misfeasance, error or omission or other alleged failure on your part to perform as required by your contract; or iv) called upon a surety to perform the work.

- 8. Describe whether any present or anticipated commitments and/or contractual obligations might have an influence on the capabilities of the Proposer to perform the work called for by this Contract. Any apparent conflicts as between the requirements/commitments for this Contract and the matters listed in items 3, 4, 5 or 6, above, with respect to the use of Proposer's resources, such as management or technical expertise or financing, should be explained. If none, state "None".

- 9. Describe any litigation in which the Proposer is involved, which:
 - a. has or may have an impact on the Proposer's ability to perform any work called for by this solicitation; or
 - b. the demand or potential exposure is for more than \$250,000, exclusive of personal injury litigation where the liability is covered by insurance.

If none, state "None."

10. During the past three years, has the Proposer's firm ever been a party to a bankruptcy or reorganization proceeding?

YES NO If answer is "YES," explain below.

11. a. If any professional or other licenses, permits, or certifications are required to perform the work/services called for by this solicitation, list the license, permit, or certification that the Proposer or Proposer's employees or agents possess. If none, state "None".

<u>License or Permit or Certification</u>	<u>Name of Holder</u>	<u>Issuing State or Entity</u>
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b. Have any of the Proposer's officers, partners, owners, managers or employees had any project related licenses, permits or certifications revoked or suspended in the past three years.

YES NO If answer is "YES," explain details below.

12. Does the Proposer's firm share office space, staff or equipment (including telephone exchanges) with any other business or organization?

YES NO If answer is "YES," list firm name, address and nature of shared facilities.

13. Has Proposer's safety practices/procedures been evaluated or rated as less than satisfactory by the City or State of New York, any other state, any public authority or other public entity, the United States government, the Metropolitan Transportation Authority ("MTA"), and MTA's affiliates and subsidiaries which are the New York City Transit Authority, Manhattan & Bronx Surface Transit Operating Authority, Staten Island Rapid Transit Operating Authority, Metro-North Commuter Railroad, Long Island Rail Road, Triborough Bridge and Tunnel Authority, Metropolitan Suburban Bus Authority, and Metropolitan Transportation Authority Card Company within the past five years?

YES NO If answer is "YES," explain details below.

14. Is your firm's Workers Compensation Experience Rating 1.2 or greater?

YES NO If answer is "YES," explain details below.

15. Does Proposer have either a history of claims loss or any substantial individual claim loss within the past five years due to general liability or workers compensation claims?

YES NO If answer is "YES," explain details below.

16. List the names, titles and attach resumes which indicate the record of skill and experience of your proposed project management team. (See Specifications or the Scope - of - Work for the functions of the project management team, as applicable, and other requirements in regard to project management.)

17. Which of the individuals named in item 16, above, will be utilized exclusively on this Contract on a full-time basis? (The Specification or the Scope - of - Work may indicate requirements for certain dedicated staff.)

18. Which of the individuals named in item 16, above, are not presently officers, partners, owners or employees of the firm?

19. Attach an outline of your proposed Quality Control program (see appropriate section of the Specifications or the Scope-of-Work) for this Contract. Where the Specifications or the Scope-of-Work set out required elements for the program, such outline must cover each element.

PART VI - ADDITIONAL QUESTIONS

1. List all Proposer's employees:

- a. who are currently employees of the Metropolitan Transportation Authority ("MTA"), or any MTA subsidiary or affiliate (New York City Transit Authority, Manhattan & Bronx Surface Transit Operating Authority, Staten Island Rapid Transit Operating Authority, Metro-North Commuter Railroad, Long Island Rail Road, Triborough Bridge and Tunnel Authority, Metropolitan Suburban Bus Authority, and Metropolitan Transportation Authority Card Company).

- b. who within the past two years have been MTA or MTA subsidiary or affiliate employees who were involved on behalf of Proposer with the preparation of this Proposal or would be involved in the performance of the Contract if it is awarded to Proposer.

2. Does Proposer have a subsidiary or affiliate?

YES NO If answer is "YES," list firm name, address and affiliation

3. Is Proposer a subsidiary of another entity?

YES NO If answer is "YES," list firm name, address and affiliation

4. Does Proposer, any director, officer, principal or managerial employee of Proposer, or any other person or entity with a 10% or more interest in Proposer have an interest of 10% or more in any other firm or legal entity?

YES NO If answer is "YES," list individuals name and firm or entity

5. If the answer to 2, 3 or 4 is "YES," would Proposer's answers pertaining to Parts III and IV be the same for each such parent, subsidiary, affiliate, firm or legal entity?

YES NO If answer is "NO," explain below

PART VII – FINANCIAL

1. Provide certified financial statements for the last three fiscal years. If certified financial statements are not available, provide financial statements sworn to by the firm's Chief Financial Officer.
2. The Proposer may submit its prior 3 years' financial statements in lieu of completing Section 1 (Balance Sheet), Section 2 (Comparative Statement of Income & Retained Earnings), and Section 3 (Comparative Statements of Cash Flows). However, Section 1, Schedules A, B, C, D, E and F and Sections 4, 6 and 7 must be completed. If the Proposer is required to submit a performance bond, Section 5 must also be completed.

SECTION 1

COMPARATIVE BALANCE SHEET

as of _____

	(\$000)	19__	19__	19__
		\$	\$	\$
I. <u>CURRENT ASSETS:</u>				
Cash _____		_____	_____	_____
Marketable Securities _____		_____	_____	_____
Notes Receivable (Schedule A) _____		_____	_____	_____
Accounts Receivable (Schedule B) _____		_____	_____	_____
Bid Deposits (Schedule C) _____		_____	_____	_____
Inventories _____		_____	_____	_____
Prepaid Expenses _____		_____	_____	_____
Other Current Assets:				
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
TOTAL CURRENT ASSETS		\$_____	\$_____	\$_____
II. <u>OTHER ASSETS:</u>				
Investment in Affiliates _____		\$_____	\$_____	\$_____
Other Non-Current Assets:				
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
TOTAL OTHER ASSETS		\$_____	\$_____	\$_____
III. <u>PROPERTY, PLANT & EQUIPMENT:</u>				
NET PROPERTY, PLANT & EQUIPMENT				
(Net of Depreciation)		\$_____	\$_____	\$_____
TOTAL ASSETS		\$_____	\$_____	\$_____

LIABILITIES

	(\$000)	19__	19__	19__
		\$	\$	\$
I. <u>CURRENT LIABILITIES</u>				
Notes Payable (Schedule D) _____		_____	_____	_____
Accounts Payable (Schedule E) _____		_____	_____	_____
Loans Payable (Schedule F) _____		_____	_____	_____
Taxes Payable _____		_____	_____	_____
Current Portion of Long Term Debt _____		_____	_____	_____
Accrued Liabilities _____		_____	_____	_____
Other Current Liabilities:				
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
TOTAL CURRENT LIABILITIES		\$_____	\$_____	\$_____
II. <u>NON-CURRENT LIABILITIES</u>				
Long Term Debt _____		_____	_____	_____
Other:				
_____		_____	_____	_____
_____		_____	_____	_____
_____		_____	_____	_____
TOTAL NON-CURRENT LIABILITIES		\$_____	\$_____	\$_____
TOTAL LIABILITIES		\$_____	\$_____	\$_____
III. <u>EQUITY</u>				
Capital Stock Paid Up:				
Common _____		\$_____	\$_____	\$_____
Preferred _____		\$_____	\$_____	\$_____
Surplus (net worth) _____		\$_____	\$_____	\$_____
TOTAL EQUITY		\$_____	\$_____	\$_____
TOTAL LIABILITIES AND EQUITY		\$_____	\$_____	\$_____

DETAILS RELATIVE TO ASSETS
SCHEDULE A

Notes Receivable	(a) due within 90 days _____ \$ _____			
	(b) due after 90 days _____ \$ _____			
	(c) past due _____ \$ _____			
Receivable From: Name	Purpose	Date of Maturity	How Secured	Amount
				\$
TOTAL				\$

SCHEDULE B

Aging of Accounts Receivable					P A S T D U E
Current	1 to 30 days	31 to 60 days	61 to 90 days	Over 90 Days	Total
Trade \$	\$	\$	\$	\$	\$
Other \$	\$	\$	\$	\$	\$
Total \$	\$	\$	\$	\$	\$

SCHEDULE C

Bid Deposit Holder of Deposit: Name	Description	Amount
		\$
TOTAL		\$

DETAILS RELATIVE TO LIABILITIES

SCHEDULE D

Notes Payable	(a) Not Past Due _____	\$		
	(b) Past Due _____	\$		
To Whom: Name		Purpose	When Due	Amount
				\$
TOTAL				\$

SCHEDULE E

Accounts Payable	(a) Not Past Due _____	\$		
	(b) Past Due _____	\$		
To Whom: Name		Purpose	Date Payable	Amount
				\$
TOTAL				\$

SCHEDULE F

Loans Payable	(a) Not Past Due _____	\$		
	(b) Past Due _____	\$		
To Whom: Name		Purpose	Date Payable	Amount
				\$
TOTAL				\$

SECTION 2

COMPARATIVE STATEMENT OF INCOME & RETAINED EARNINGS
STATEMENT FOR PERIODS ENDED _____

	19__	19__	19__
SALES _____	\$ _____	\$ _____	\$ _____
Less:			
COST OF SALES:			
Labor _____	_____	_____	_____
Material _____	_____	_____	_____
Depreciation _____	_____	_____	_____
Other Overhead _____	_____	_____	_____
GROSS MARGIN	\$ _____	\$ _____	\$ _____
Less: Selling, General and Administrative Expenses _____	_____	_____	_____
Income Before Taxes _____	_____	_____	_____
Less: Income Taxes _____	_____	_____	_____
NET INCOME	\$ _____	\$ _____	\$ _____
Retained Earnings Beginning of Period _____	\$ _____	\$ _____	\$ _____
Less: Cash Dividends Paid _____	\$ _____	\$ _____	\$ _____
Other: _____	\$ _____	\$ _____	\$ _____
Net Retained Earnings End of Period _____	<u>\$ _____</u>	<u>\$ _____</u>	<u>\$ _____</u>

SECTION 3

COMPARATIVE STATEMENTS OF CASH FLOWS
 FOR THE YEARS ENDED _____
 Increase (Decrease) in Cash

	19__	19__	19__
Cash flows from operating activities: _____	\$ _____	\$ _____	\$ _____
Cash received from customers _____	_____	_____	_____
Cash paid to suppliers & employees _____	_____	_____	_____
Interest Paid _____	_____	_____	_____
Income Taxes Paid _____	_____	_____	_____
Miscellaneous receipts (payments) _____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Net cash provided by operating. activities ____	\$ _____	\$ _____	\$ _____
Cash flows from investing activities:	_____	_____	_____
Proceeds from sale of equipment: _____	_____	_____	_____
Payments for purchase of equipment: _____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Net Cash Used in Investing activities: _____	\$ _____	\$ _____	\$ _____
Cash flows from financing activities:	_____	_____	_____
Net increase in short-term debt:	_____	_____	_____
Proceeds from issuance of long-term debt ____	_____	_____	_____
Repayment of long-term debt _____	_____	_____	_____
Payment of Dividends _____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Net Cash provided by (used in) financing activities	\$ _____	\$ _____	\$ _____
Net increase (decrease) in cash _____	\$ _____	\$ _____	\$ _____
Cash at beginning of year _____	\$ _____	\$ _____	\$ _____
Cash at end of year _____	\$ _____	\$ _____	\$ _____

SECTION 4 - IDENTITY OF OWNERS

Who are the principal owners or shareholders of the business enterprise and approximately what percentage does each own?

Name	Percent Owned

SECTION 5 - PERFORMANCE BOND INFORMATION

Section 5 is only applicable to solicitations in which the Proposer is required to provide a performance bond.

Names and addresses of bonding company or companies that have agreed to furnish the performance bond required by the Contract.

Name	Address	Amount	Expiration Date
		\$	

4. He/she acknowledged and understands that the Questionnaire includes provisions which are deemed included in the Contract if awarded to the firm.

Sworn to before me this _____ day of _____, 199__

(Notary Public)

APPENDIX B.12

NEGOTIATION MEMORANDUM SAMPLE FORMAT

Where the price was established based on an evaluation of cost elements and fee in the offeror’s proposal, the negotiation memorandum should clearly set forth the various amounts as they were proposed, evaluated, and negotiated. For example:

<u>Cost Elements:</u>	<u>Proposed</u>	<u>Independent Cost Est.</u>	<u>Pre-Neg. Plan</u>	<u>Negotiated</u>
Direct Labor:	\$	\$	\$	\$
Engr.				
Mfg.				
Overhead:				
Engr.				
Mfg.				
Materials				
G&A				
Total Costs	_____	_____	_____	_____
Fee	_____	_____	_____	_____
Total Price	\$	\$	\$	\$

Note: your narrative should discuss each of the cost elements and the fee/profit, describing how the final negotiated amount for each element and profit was determined. You should reference the Pre-Negotiation Plan objectives (if one was prepared), or the Independent Cost Estimate, in your narrative.

APPENDIX B.13**WARRANTY & GUARANTEE REGISTER****MARTA**

CPB – Senoia Intermodal Facility

Date: 7/10/97

Item Number	Spec Section	Warranty/Grantee Description	Providing Company	Expiration Date	Company Address
1	XXX	General Construction	Beers Construction	6/15/97	70 Ellis Street, N.E. Atlanta, GA 30303
2	7180	Water Repellant Coatings	Metro Waterproofing, Inc.	6/15/01	2935 Alcove Drive Scottsdale, GA 30079
3	7411	Performed Metal Roofing	Installer: Yancey & Jamison	6/15/16	470 Bakers Ferry Road Atlanta, GA 30362
3	7411	Metal Roofing	Manufacturer: Fabral	6/15/16	3449 Hempland Road Lancaster, PA 17601
4	7532	Loose Laid Membrane Roofing	Installer: Standard Roofing	6/14/16	Post Office Box 48124 Atlanta, GA 30362
4	7532	Membrane Roofing	Manufacturer: TAMKO	6/14/16	Post Office Box 1404 Joplin, Miss 64802
5	7525	Modified Bituminous Sheet Roofing	Installer: Standard Roofing	6/14/16	Post Office 48124 Atlanta, GA 30362
5	7252	Bituminous Sheet Roofing	Manufacturer: TAMKO	6/14/16	Post Office 1404 Joplin, Miss 64802
6	7920	Sealants	Metro Waterproofing, Inc.	6/15/97	2935 Alcove Drive Scottsdale, GA 30079
7	8311	Sliding Steel Door	Overhead Door Company	6/15/97	511 Stephens Road Atlanta, GA 30310
8	8331	Counter Fire Door	Overhead Door Company	6/15/97	511 Stephens Road Atlanta, GA 30310
9	8332	Insulated Sectional Doors	Overhead Door Company	6/15/97	511 Stephens Road Atlanta, GA 30310
10	8710	Hardware	Atlantic Hardware & Supply Company	6/15/97	5695 Oakbrook Parkway Norcross, GA 30093
11	8000	Installing Glazing	Glasstream	6/15/01	884 Kurtz Road Marietta, GA 30066

**APPENDIX B.14
CONTRACT CLOSEOUT CHECK LIST**

Memorandum

Date: 3-Jan-98

To: Director of Construction and Contract Administration

From: Resident Engineer

Subject: Contract CF720, North Point Station and Parking Deck Contract Closeout

This is to advise that Contract CF720, North Point Station and Parking Deck, is ready for formal closeout by the ARTA Board. The Contract completion date was December 7, 1997. The final Contract amount is \$42,657,320.00, leaving a Contingency balance of \$226,181.00.

The tabulation below is a complete checklist of closeout actions, reflecting their current status.

ITEM	STATUS	
1. Certificates of Beneficial Occupancy/Substantial Completion	Complete	6/2/97
2. Punch List	Complete	7/17/97
3. Liquidated Damages	N/A	N/A
4. Temporary Construction Easement Signoffs	Complete	5/20/97
5. Change Orders Issued	Complete	6/18/97
6. Claims	Closed	4/6/97
7. Final Quantities	Agreed	5/2/97
8. Equipment/System Testing	Accepted	7/8/97
9. Spare Parts/Spare Materials	Received	8/14/97
10. Operation & Maintenance Manuals	Received	7/27/97
11. Warranties	Accepted	8/24/97
12. Project Record Documents	Accepted	9/2/97
13. Final Corrected Shop Drawings	Accepted	10/12/97
14. Product Data Book	Accepted	10/12/97
15. Final Labor Summary	Received	11/14/97
16. List of Subcontractors	Received	11/14/97
17. Affidavit of Final Payment	Received	12/7/97
18. Final Payment	Processed	12/20/97
19. Final Marta Audit	Complete	11/21/97
20. Certificate of Completion	Complete	12/7/97
21. Sign Offs by County & State	County Pending	
22. Contract Files & Closeout Book	Forecast Comp.	1/15/98

EXHIBIT A**APPENDIX B.15
REQUEST FOR PROPOSAL NO. 89964
FLEET VEHICLE SERVICES
SPECIAL TERMS AND CONDITIONS****I. BACKGROUND****A. Vanpool Incentive Program (VIP) Fleet**

The Pace Vanpool Incentive Program (VIP) officially launched in November 1991 is a subsidized program available within the suburban six county Northeastern Illinois area. VIP trips can either originate or terminate within the Pace service area. Through October 1999 the VIP service fleet size was approximately 375 vans with a total of 320 vans in operation. Vans are utilized primarily to take employees to and from work.

Pace anticipates a minimum annual growth rate of 40 vans per year, which would place the fleet size at approximately 500 vans with a total of 440 vans in operation by the end of 2002. However, Pace is not committed to having any minimum number of vans in operation.

B. Pace Non-Revenue Fleet

Pace's non-revenue fleet consists of approximately 130 owned and leased passenger sedans and service vehicles that are located and operated at various Pace-owned facilities within the six county Northeastern Illinois area. The majority of vehicles are utilized by Pace staff to conduct Pace related business activities.

II. SCOPE OF WORK

Pace, the Suburban Bus Division of the Regional Transportation Authority, is seeking proposals from qualified companies to provide fleet vehicle services for its Vanpool fleet and non-revenue fleet. These services will include vehicle leasing, fleet vehicle management, fuel credit card and accident management/subrogation services. All firms wishing to submit proposals may do so for any or all of the services required.

Pace will evaluate each completed proposal submitted and select either a total package or select elements of a particular proposal which provide Pace with the most cost effective and efficient means of operating its vanpool and non-revenue fleet vehicle program.

The elements of the scope of work are:

- Vehicle Leasing Services
- Management Services
- Fuel Credit Card Services
- Accident Management/Subrogation Administration

III. PROPOSAL FORMAT AND VENDOR RESPONSE

Responses to this RFP must correlate with the alpha numeric characters in the RFP. Each item in the RFP should be addressed in the proposal.

IV. COMPANY INFORMATION

All information requested in this section must be addressed in the offeror's proposal with the exception of vendors submitting a proposal for vehicle leasing services only. Please limit your responses to two or three pages. Offerors must provide information on the following:

- A. A history and overview of your firm to include number and location of offices in the U.S., list the total number of customers, list the number of customers with a fleet size greater than 500 vehicles and your average fleet size. The legal name of your company, if doing business under some name other than that by which the company is commonly recognized. If the company is owned or controlled by a parent organization, offerors are requested to provide the name of that organization, its address and the name and title of the person responsible for your business unit.
- B. Provide three current contacts with telephone numbers and addresses from clients for each of the elements listed in Scope of Work that closely reflects Pace's fleet management requirements. Include one contact from each of the following categories: oldest, largest and newest.
- C. A description of the firm's experience and a description of the experience and training of all key individuals associated with the project. Proposals should detail all firm and individual experience relevant to the types of service described in this RFP.
- D. An organizational chart with job descriptions of key individuals assigned to the project. Job descriptions should be specific to the project.
- E. Identify the unique strengths of your company and how they can provide the best fleet vehicle services for Pace.
- F. Discuss the top three (3) distinctions between your company and its competitors.

- G. Identify the number of customers and average fleet size that each of your salesman/representative oversees. How many calls per day does he/she average and response time.
- H. Provide the company name, contact, phone number and fleet size of at least two (2) accounts that have left your company within the past two years.
- I. Describe how your company performs quarterly, semi or annual fleet reviews with your clients and the process of how these reviews are conducted.
- J. Describe in detail all charges, administrative fees, processing fees, mark-ups, etc. in a "fee schedule". This should include, as examples, subrogation fees, accident report fees, etc.
- K. Describe the mediation procedure for a customer complaint about one of your employees or vendors.
- L. Identify how many of your clients use each of the following services:
 - Preventative Maintenance
 - Vehicle Maintenance Assistance
 - Emergency Roadside Assistance
 - Accident Management/Subrogation Service
 - Fuel Service

V. VEHICLE LEASING

All companies submitting proposals for this portion of the current RFP must comply with the specifications listed below in their proposal to assure an accurate and fair evaluation:

Quantity and Term

- X The number of vehicles to be considered as part of the leasing portion of this RFP will be a minimum of 41 vehicles up to a maximum of 45 vehicles for the 2000 model year (up to 5 of which may be station wagons) and up to an additional 8 vehicles for the 2001 model year). Vehicles may be leased up to the end of the two year contract with complete two year lease periods guaranteed at the proposed pricing.
- X Vehicle lease terms shall be for a base period of 24 months with an option to extend the lease period for an additional 12 months if Pace chooses to do so and informs the leasing agent at least three months prior to the end of the current lease period.

Pricing

- X Pricing quoted in the proposal shall be for the duration of the contract period and for the length of any lease entered into during the contract period. It shall include all costs associated with the preparation of all paperwork necessary to procure and the actual procurement of all vehicle titles, licenses, and any other miscellaneous fees.
- X The lease pricing will be based on an annual usage of 15,000 miles. The proposal will specify any additional per mile charges should this mileage be exceeded.

Specifications

- X Leased vehicles shall be those of the current model year as determined by the date on which the vehicles are formally requested.
- X Vehicle warranty will be bumper to bumper for a minimum of 3 years or 36,000 miles and a 24 hour/7 day roadside driver assistance program will be provided.
- X All pre-delivery vehicle servicing will be performed in accordance with accepted new car delivery preparation standards.
- X Vehicle specifications listed below are for a mid-size, 5 passenger, 4 door sedan, (or station wagon) front wheel drive, gasoline powered, automobile that fully complies with the Clean Fuel Fleet Program Requirements of the Illinois Environmental Protection Agency. **Specifically, the engine must be certified by the United States Environmental Protection Agency (EPA) to be a gasoline powered, Low Emission Vehicle (LEV) to comply with required clean air specifications.**
 - All standard equipment with no deletions
 - Engine will be LEV compliant, gasoline powered
 - Transmission: 4 speed automatic
 - Steering: power
 - Brakes: power disc
 - Air Conditioning: To include factory installed air conditioning , complete tinted glass, and all heavy duty equipment normally required as part of a manufacturer's air conditioning installation.
 - Cruise control
 - Rear window defroster, electric
 - Mirrors: interior rearview (day/night), exterior LH & RH remote
 - Seating: cloth, front buckets with console, rear full width bench
 - Full interior carpeting with floor mats
 - Radio: AM / FM stereo

- Tires: new all season, steel belted radials (BSW) with standard wheels / covers and a space saver spare
- Body side molding
- Multi speed windshield washers with intermittent and washers
- Tilt steering wheel
- Power windows
- Power door locks
- Air bags: driver and front passenger
- Color of interior and exterior to be selected at time of order from manufacturer's standard selections

This element will be awarded on the lowest responsive and responsible total price of all items listed in Exhibit C for (Vehicle Leasing).

VI. VEHICLE MAINTENANCE AND MANAGEMENT SERVICES

Firms are to submit monthly per vehicle cost quotations and identify any discounts that they can offer associated with providing Fleet Maintenance and Fleet Administration for approximately 580 revenue and non-revenue passenger type vehicles and service vans. (See the attached schedule of vehicles.) Firms are to submit pricing based on services listed below and may list additional services that they are capable of providing along with per unit pricing for each additional service in Exhibit C. Pace may choose to select additional proposed services, but will not be required to do so.

The scope of services Pace is seeking under this section include the following:

- A. Driver support to coordinate repairs and minimize vehicle downtime
- B. Cost and quality controls for vehicle repairs
- C. Fleet management support and recommendations
- D. Driver DMV reviews/checks
- E. Emergency roadside assistance
- F. Quarterly metrics for costs and services

Services listed below will be considered minimum and must be identified and addressed in your proposal:

A. VEHICLE RELATED

Vendor will assume oversight responsibility for all scheduled and unscheduled maintenance of Pace owned and leased revenue and non-revenue passenger and service vehicles.

1. Preventive Maintenance (PM)

- a. How is the PM schedule determined and documented?
- b. How would PM exceptions be handled and at what point would Pace be notified?
- c. Does your firm issue PM coupons?
- d. How are these coupons issued?
- e. How is a customer notified when a PM is due?
- f. What controls do you have in place to preclude unauthorized use of services, such as a lost maintenance coupon?
- g. How is PM service documented (PMA, PMB)?
- h. Describe the support process for a repair discovery during a PM service. (Who contacts your company - the vendor or the customer, what if another vendor is required to do the service - how is this accomplished/handled?)
- i. Describe the process of documenting the PM from initiation to closure.
- j. Describe in detail your firm's procedure on how you would monitor maintenance work being performed on a vehicle without the use of the maintenance coupon book. Describe how your firm identifies that the work was performed so it will not appear, via the exception report, that the driver did not have the work done.

2. Maintenance and Repair

- a. Include service providers for various types of repair and maintenance work and any applicable discounts that Pace would realize when using these vendors.
- b. Describe your firm's capabilities for providing 24 / 7 driver's aide with regards to emergency roadside assistance. How do you handle after normal business hour maintenance problems?
- c. Furnish a description of how your vehicle maintenance procedures work and what types of services are included in your firm's maintenance program: (loaner vehicle service, rental vehicle service, vehicle drop off, driver pick up, etc.).
- d. Describe your firm's criteria for evaluating suggested repairs, verifying the fairness of pricing, and authorizing unscheduled repairs.
- e. Describe what a driver should do if there is not a dealership or repair facility that is an authorized facility under your program. What steps are necessary to add a dealership or repair facility as an authorized facility under your program.
- f. Describe your billing procedures for non-approved participating repair facilities.
- g. Describe how a repair facility used by Pace which is not a national account or approved by your company become approved and direct bill your company.
- h. Describe how you track services provided for reporting services and describe the billing for any maintenance markups.

- i. Describe the process for documenting the vehicle repair service from initiation to closure.
 - j. How do you insure the quality of your program and services?
 - k. Do you screen companies in your body shop network? If so, describe the process.
 - l. Describe what controls you have in place to ensure that only necessary maintenance is performed on Pace's vehicles.
 - m. Describe your firm's strategies for minimizing repair times and driver downtime.
 - n. Describe your firm's process for monitoring the repair process (time, labor rates, parts used, quality of repair and driver satisfaction).
 - o. Describe the support process in the event that a vehicle requires repair service but is under a manufacturer or repair facility warranty.
 - p. Describe what government pricing you can provide for tires through your fleet vendors.
 - q. The company selected is required to provide the following maintenance and repair related information/reports for Pace:
 - Monthly Reports
Summary cost reports (body repairs, mechanical repairs, glass, car rentals, etc.)
 - Custom Reports as Requested
 - Information Processing
Accept weekly download of driver information from Pace.
Accept monthly download of vehicle odometer readings from Pace.
 - Quarterly Metrics
Pace trends (average cost of repairs, average number of days for repairs, etc.)
Pace performance vs. other accounts.
Vendor performance vs. Industry (average cost of repairs, average number of days for repairs, etc.).
 - Semi-Annual Review
Pace trends.
Industry trends.
Pace opportunities.
3. Warranty Related
- a. Describe your firm's warranty monitoring and management warranty claim
 - b. service. How does your firm secure extended warranty (out of warranty) non-warranty items?
 - c. Describe your recovery rate for the above? Identify how many warranty claims were submitted, and the number returned and amount received.
4. Sales Related
- a. Describe your firm's ability to provide vehicle disposal and your firms remarketing procedures. Is it done geographically?
 - b. How do you compare to AMR clean regarding sale of vehicles.
 - c. Describe what percentage of vehicles sold are sent to auction for resale.

- d. Provide your process for insuring that Pace's liability for bodily injury and property damage ends once a vehicle is released to your firm's auto salvager or disposal vendor. Describe when Pace's liability ends on the sale of vehicle and provide any existing contract language which describes this process.

B. BILLING

1. Describe your firm's billing procedures along with any reserve deposits or initial fee requirements.
2. Describe your firm's ability to provide tax-exempt billing for Pace, or to provide reports to Pace that will show all taxes paid in a format that will aid Pace in retrieving these taxes from the taxing agencies.
3. Describe your service level regarding vendor payment of national chains and independent vendors.
4. Describe your process of billing Pace on a monthly basis.
5. Describe in detail your billing format. Is your firm able to provide summary billing? And is your summary billing Pace-defined or canned?
6. Describe how your company provides electronic auditing and payment of maintenance billing to your vendors in detail.
7. Pace requires that all monthly charges appearing on the monthly billing statement are fully explained, either within the bill or in a supplementary schedule. Describe how your firm is able to address this concern.

C. COMPUTER SOFTWARE/REPORTS AND INFORMATION PROCESSING

1. Vendor will maintain detailed, computerized maintenance records on each vehicle and current data on the entire fleet.
2. Describe the various types of service and management reports available through your company, as well as your ability to provide customized report. Identify any additional cost for customized reports.
3. Describe your firm's ability to perform maintenance analysis identifying excessive consumption or repair volumes (exception reports). Identify their frequency, what percentage of the fleet is sampled, and the ability to provide personalized reports. Does your system allow Pace to be immediately notified as soon as a vehicle is outside the acceptable standard/range established by Pace? If so, how is it done?
4. Describe your firm's ability to provide information to and collect information from clients via the Internet: i.e. on-line report generation, account access, inputting of client vehicle information such as mileage or extra vehicle services.
5. Describe your firm's ability to accept reports from different companies, i.e. fuel card programs, prior maintenance services etc. into your system for the purpose of generating accurate and complete vehicle history reports.

6. Describe the type and number of maintenance/management reports available and their frequency. Describe and provide samples of the type of "standard" fleet reports available on your system.
7. Describe how your firm would handle the transition of Pace fleet information from Pace's present fleet management provider into your program? Describe your company's strategy to ensure a seamless transition if your company is selected.
8. Describe how the computer system you provide will operate as a standalone system to support all fleet operations activity regardless of the programs utilized by your company.
9. Describe in detail how your computer system you provide to Pace accepts data downloads from other sources other than your own?

D. CUSTOMER SERVICE RELATED

1. Explain your company's toll free number for customers to access repair service.
2. Explain what hours and days these services are in operation.
3. Describe the qualifications and experience of your employees regarding these services.
4. Identify what other responsibilities your maintenance personnel has other than handling maintenance related calls in detail.
5. Describe the average number of calls your maintenance management department receives each day and each week.
6. Describe the service levels regarding:
When calls are answered?
Response time?
Both national chains and independent vendors
7. Describe if your company performs quarterly, semi or annual fleet reviews with your clients.
8. Describe what type of documentation is presented at these reviews. Who conducts these reviews? Please provide samples of these reports.
9. Describe your capabilities in providing in-house reports to Pace on a monthly, quarterly, semi or annual basis.
10. Describe the mediation procedure for a customer complaint about one of your employees or one of your vendors.

E. ADMINISTRATION

1. Pace prefers that the selected vendor's staff (not a third party) handle the initial call from Pace VIP drivers, even after normal business hours . Describe your call center.
2. Describe your capabilities in providing Pace with a dedicated toll-free number for its VIP drivers.
3. Describe your firm's capabilities in providing Internet capabilities for retrieving fleet related information, sending driver/fleet related information, etc.

4. Describe your customers' data retrieval capabilities on fleet related costs, services, information, etc.. How long does it take for maintenance and/or fuel related purchases to become available (12 hours, 24 hours, 2 days, etc.). Do you have modem based on-line informational retrieval capabilities?
5. Describe information contained in your vehicle maintenance coupon booklet. Can it be customized, specific to a vehicle, etc.
6. Describe how you survey your customers to determine satisfaction with staff, fleet vendor services, etc.
7. Describe your firm's ability to offer Visa or Mastercard type charge capabilities for Pace. A card would not be issued to Pace but would be available via your firm for certain services; rental car, limo service, repair facility requires immediate payment, etc. A Pace staff person would be contacted by your firm to authorize a charge for a Pace driver via this mechanism.
8. Describe your firm's process in providing base monthly per vehicle cost and schedule of discounts based on incremental volume associated with fleet management
9. Describe your firm's emergency roadside assistance program. How do you evaluate and/or grade vendors utilized in your companies emergency roadside assistance program?
10. Describe whether your firm offers more than one maintenance or gas card program, and identify them and their associated costs in Exhibit C.
11. Describe all controls built into your program(s) and the nature of your review process.
12. Describe the process to remove a vehicle from service.
13. Describe how Pace's fleet information (fuel consumption/cost, maintenance repair history/costs, accident history, etc.) can be integrated into other industry fleet software management systems (i.e., E:Track).

This element of the RFP as part of the overall evaluation, technical factors will be worth 60% and price is worth 40%.

VII. FUEL CARD MANAGEMENT SERVICES

Firms submitting proposals for this portion of the RFP should be certain to provide information concerning their ability to comply with all of the requirements listed below as well as any other information regarding their ability to initiate and maintain a program that will satisfy Pace's needs. The fuel cards which are provided by your firm must be vehicle specific with the vehicle license number and/or Pace assigned number appearing on the card. In addition, Pace requires that the card be tax (federal motor fuel, state and county) exempt and minimally, have the ability to purchase fuel at two (2) different oil company service stations.

1. Describe your ability to offer a single/universal fueling charge card that is tax exempt and accepted at a variety of name brand stations throughout Pace's six county service area. List the different companies that will accept your card.
2. Describe your companies ability to provide assistance to drivers that may experience problems with your card through a 24 / 7 customer service 1-800 help line.
3. Describe your companies identification and verification capabilities for drivers who will be using your fuel card, i.e., ID#, single card multiple PIN #, etc.
4. Describe your billing procedures with respect to the types of information you are capable of providing and your ability to provide Pace with billing that will exclude sale tax.
5. Describe your selection of reports and your ability to custom design reports should Pace require a different format.
6. Describe your tracking program that would highlight excessive fuel purchases on any card and your method of notifying your client.
7. Describe your ability to forward information concerning fuel purchases and related reports to a third party fleet administration vendor for the purpose of maintaining all vehicle information at a central location for comprehensive reporting purposes.
8. If your company is notified to cancel a fuel card, how long does it take before the card is shut-off with the fuel card company provider? Describe the steps required to cancel fuel cards. When does Pace's liability end and what is the maximum dollar amount that Pace is responsible for during that period.
9. Describe procedures you have in place to prevent as well as detect abuse/misuse of fuel cards.
10. From the time your company is notified to order a fuel card for a vehicle, how long does it take to receive the card?
11. List all fuel cards (including tax exempt) your company is able to interface and receive data from.
12. List all data you are able to receive and formats needed to receive it.
13. Describe your company's ability to provide real-time card usage information via Internet or software driven electronic communications.

This element of the RFP as part of the overall evaluation, price is worth 60% and technical factors are worth 40%.

VIII. ACCIDENT/SUBROGATION SERVICES

Furnish a description of how you firm would manage all administrative details for all accident reports/repairs and subrogation processes including:

1. Towing arrangements
2. Car/van rental arrangements
3. Appraisals and photographs
4. Salvage
5. Claims recovery assistance
6. Coordination of subrogation and loss recovery

7. Third party physical damage claims
8. Reporting associated with accident, repair, subrogation claims, recoveries and legal proceedings
9. Accident activity reports

Included in the description should be an estimate of expenses for a complete year, including fees, subrogation recoveries etc., based on the “applicable fee schedule” and 100 accidents/incidents per year. As part of the accident administration, the vendor will be required to receive telephonic reports of all accidents involving property damage. The associated costs for this service must be identified in Exhibit C. Pace prefers that the selected vendor have the capability of providing immediate on-line access to all information, including accident damage photographs.

Minimally, the selected vendor will be required to provide the following information:

1. Monthly listing of all accidents that have been reported with an indication of liability.
2. Set-up sheet for each subrogation file that is opened.
3. Quarterly subrogation activity report showing the current status of each file.
4. Monthly report showing damages recovered for the reporting period and the cost of repairs for each vehicle. Funds recovered should accompany this report.
5. Semi-annual report to include total cost of repairs and total of recovered damages.
6. Semi-annual report showing Pace trends, industry trends, and Pace opportunities.

For this phase of the RFP as part of the overall evaluation, price is worth 50% and technical factors are worth 50%.

IX. PROPOSAL EVALUATION

Pace staff will evaluate the proposals and develop a list of firms to interview on the basis of the following criteria, listed in descending order of importance, however, for each of the services to be provided as identified in the scope of work. As noted on the previous pages Vehicle Leasing will be determined on 100% price. Vehicle Maintenance and Management Services will be evaluated 60% technical and 40% cost, Fuel Card Management Services will be evaluated 60% cost and 40% technical and Accident/Subrogation Services will be evaluated 50% cost and 50% technical.

- A. The quality and comprehensiveness of each element, i.e., Vehicle Leasing Services, Vehicle Maintenance and Management Services, etc. that your firm is addressing in this proposal.
- B. The firm’s experience and history on comparable projects, client relationship records, and references on similar projects.

- C. The firm's understanding of the requirements, deliverables, technical approach and an explanation of what services your firm will provide to meet Pace's needs.
- D. Procedures describing firm's monitoring controls, reporting methods, report detail and documentation and electronic data interchange capabilities between Pace, and service vendors and your firm or other firms.
- E. Quality of your firm's surveys, procedures, past practices in monitoring customer needs and providing quality and responsive customer service (including problem intervention, resolution, follow-up, satisfaction, etc).
- F. Price (Factors vary for type of services to be provided as identified in the proposal).

X. AWARD OF CONTRACT

Pace reserves the right to award one contract or multiple contracts without discussion. Offerors should take this into consideration and provide their best proposal at their most competitive price. Proposals can be submitted for individual elements of this procurement.

XI. DURATION OF CONTRACT

The contract term with the exception of the Vehicle Leasing element will be for three (3) years from the date of award and include two one (1) year options.

XII. PROPOSAL SUBMITTAL REQUIREMENTS

Please limit your responses to three or four pages for each element proposed.

- A. Price proposal to be filled in and submitted separately but concurrently in the #10 envelope marked "Price Proposal".
- B. FTA/IDOT/RTA requirements must be submitted with proposal (Pages 13-18 in Exhibit B).
- C. Non-Collusion Affidavit and Contractor Certification must be signed and notarized as indicated.
- D. Submit four (4) copies of your proposal These copies will be distributed to the evaluation team. **DO NOT INCLUDE YOUR PRICING INFORMATION** with your technical proposal.
- E. Only one copy of the contract, affidavits, compliance requirements and price proposal are needed.

XIII. CONTRACT DOCUMENTS

Exhibit A: Special Terms and Conditions.

Exhibit B: Instructions to Contractors & General Contract Provisions.

Exhibit C: Price Proposal Page.

Exhibit D: Insurance Requirements.

APPENDIX B.16**PIGGYBACKING WORKSHEET**

Definition: *Piggybacking is the post-award use of a contractual document/process that allows someone who was not contemplated in the original procurement to purchase the same supplies/equipment through that original document/process.* ("FTA Dear Colleague" letter, October 1, 1998).

In order to assist in the performance of your review, to determine if a situation exists where you may be able to participate in the piggybacking (assignment) of an existing agreement, the following considerations are provided. Ensure that your final file includes documentation substantiating your determination.

WORKSHEET	YES	NO
1. Have you obtained a copy of the contract and the solicitation document, including the specifications and any Buy America Pre-award or Post-Delivery audits?		
2. Does the solicitation and contract contain an express "assignability" clause that provides for the assignment of all or part of the specified deliverables?		
3. Did the Contractor submit the "certifications" required by Federal regulations? See BPPM Section 4.3.3.2.		
4. Does the contract contain the clauses required by Federal regulations? See BPPM Appendix A1.		
5. Were the piggybacking quantities included in the original solicitation; i.e., were they in the original bid and were they evaluated as part of the contract award decision?		
6. If this is an indefinite quantity contract, did the original solicitation and resultant contract contain both a minimum and maximum quantity, and did these represent the reasonably foreseeable needs of the parties to the contract?		
7. If this piggybacking action represents the exercise of an option in the contract, is the option provision still valid or has it expired?		
8. Does your State law allow for the procedures used by the original contracting agency: e.g., negotiations vs. sealed bids?		

WORKSHEET		YES	NO
9.	Was a cost or price analysis performed by the original contracting agency documenting the reasonableness of the price? Obtain a copy for your files.		
10.	Does the contract term comply with the five-year term limit established by FTA?		
11.	Was there a proper evaluation of the bids or proposals? Include a copy of the analysis in your files.		
12.	If you will require changes to the vehicles (deliverables), are they “within the scope” of the contract or are they “cardinal changes”? See BPPM Section 9.2.1.		

Note: This worksheet is based upon the policies and guidance expressed in (a) the FTA Administrator's "Dear Colleague" letter of October 1, 1998, (b) the *Best Practices Procurement Manual*, Section 6.3.3—*Joint Procurements of Rolling Stock and “Piggybacking,”* and (c) FTA Circular 4220.1E.

APPENDIX B.17

EXAMPLE OF STATEMENT OF QUALIFICATION OF SUBCONTRACTOR

FROM NEW YORK CITY TRANSIT AUTHORITY –
ENGINEERING AND CONSTRUCTION DEPARTMENT

The statements herein are confidential and made solely for the information of the New York City Transit Authority in connection with the proposed subcontract with

Name of General Contractor

Address City State Zip Code

Under its general Contract No. _____ with the New York City Transit Authority.

GENERAL INFORMATION

1. Name of proposed subcontractor: _____

2. Address: _____
(principal office) Address City State Zip Code

3. **If a corporation:** _____ **If a partnership:** _____
When Incorporated _____ Date of Organization _____
Vice-President’s name _____ Names and addresses of partners _____
Secretary’s name _____
Treasurer’s name _____

4. Description of work to be done under proposed subcontract. Indicate clearly whether work involves labor only or labor and material. List principal items of materials, if any to be furnished.

5. Total amount of proposed subcontract: \$ _____

EXPERIENCE

6. How many years of experience? _____

7. Give, briefly, previous experience of directing officers including chief engineer and general superintendent on similar work.

NAME	PRESENT POSITION	YRS. OF CONSTRUCTION EXPERIENCE	MAGNITUDE AND TYPE OF WORK	WHAT CAPACITY

8. List principal contracts completed by present organization.

LOCATION	CONTRACT PRICE	CLASS OF WORK	PERCENT COMPLETED	NAME AND ADDRESS OF AWARDDING PARTY

9. List contracts, if any, that present organization has on hand.

LOCATION	CONTRACT PRICE	CLASS OF WORK	PERCENT COMPLETED	NAME AND ADDRESS OF AWARDDING PARTY

10. Give references of at least two engineers or architects for whom present organization has done similar work.

NAME	TELEPHONE NUMBER	ADDRESS	POSITION

11. Labor employed through _____

12. Give any supplemental information that the undersigned desires to submit.

The undersigned agrees to furnish the New York City Transit Authority additional or supplemental information concerning its financial and/or technical qualifications, when and as required.

Name

Date

**APPENDIX B.18
HIAWATHA LINE PUBLIC ART & DESIGN BUDGET**

Description of Commission		Design Phase Allocation	Estimated Additional Allocation for Construction Drawings	Fabrication and Installation Phase Max Allocation	Maximum Total Commission
1	System-Wide Interactive Artwork	\$45,000	\$5,000	Not Applicable	\$50,000
2	Design Platform Surface Patterns	\$23,500	\$5,000	Not Applicable	\$28,500
3	System-Wide Lighting Elements Color Scheme for Platform & Skyway Restoration of “Franklin” Marquee	\$76,500	\$8,500	Not Applicable	\$85,000
4	Sequential Gateway	\$31,500	\$8,500	Not Applicable	\$40,000
5	Landmark	\$15,000	\$5,000	\$110,000	\$130,000
6	Masonry Icons	\$3,500	\$1,500	\$10,000	\$15,000
7	Special Platform Surface Treatment Glass Windscreen Treatment Landmark	\$16,000	\$4,000	\$90,000	\$110,000
8	Community Tiles	\$12,500	\$2,500	\$30,000	\$45,000
9	Integrated Artwork	\$10,000	\$2,000	\$68,000	\$80,000
10	Translucent Photo Images Etched Glass for Towers and Windscreens	\$17,000	\$3,000	\$100,000	\$120,000
11	Metal Objects/Text in Canopy Joist Structure Canopy & Bus Shelter Pergola Sculpture	\$17,000	\$3,000	\$90,000	\$110,000
12	Metal Tree Grates Utility Access Covers Design Platform Surface Pattern Metal Paver Inserts & Inlay Imagery	\$10,000	\$2,000	\$35,000	\$47,000
13	Design Platform Surface Pattern Metal Paver Inserts & Inlay Imagery Canopy Drain Scuppers and Grills	\$12,000	\$3,000	\$68,500	\$83,500
14	Metal Railing Augmentation Metal Windscreen Overlay	\$17,000	\$3,000	\$142,000	\$162,000
15	Landmark	\$10,000	\$2,000	\$68,000	\$80,000
16	Bas-Relief or Tile Murals	\$26,000	\$4,000	\$190,000	\$220,000

APPENDIX B.19

MANDATORY PROCUREMENT STANDARDS WORKSHEET

No.	Element	FTA Circular 4220.1E Paragraph No.	Grantee Procurement Policy/Procedure Reference
1)	Written Standards of Conduct	7.c.	
2)	Contract Administration System	7.b.	
3)	Written Protest Procedures	7.1.	
4)	Prequalification System	8.d.	
5)	System for Ensuring Most Efficient and Economic Purchase	7.d.	
6)	Procurement Policies and Procedures	7.a.	
7)	Independent Cost Estimate	10.	
8)	A&E Geographic Preference	8.b.	
9)	Unreasonable Qualification Requirements	8.a.(1)	
10)	Unnecessary Experience and Excessive Bonding	8.a.(2)	
11)	Organizational Conflict of Interest	8.a.(5)	
12)	Arbitrary Action	8.a.(7)	
13)	Brand Name Restrictions	8.a.(6) and 8.c.	
14)	Geographic Preferences	8.b.	
15)	Contract Period of Performance Limitation	7.m.	
16)	Written Procurement Selection Procedures	8.c.	
17)	Solicitation Prequalification Criteria	8.d.	
18)	Award to Responsible Contractors	7.h.	
19)	Sound and Complete Agreement	15.	
20)	No Splitting [Micro-purchase]	9.a.	
21)	Fair and Reasonable Price Determination [Micro-purchase]	9.a.	
22)	Micro-Purchase Davis Bacon	9.a.	
23)	Price Quotations [Small Purchase]	9.b.	

No.	Element	FTA Circular 4220.1E Paragraph No.	Grantee Procurement Policy/Procedure Reference
24)	Clear, Accurate, and Complete Specification	8.c.(1), 9.c.(2)(b) & 9.c.(1)(a)	
25)	Adequate Competition - Two or More Competitors	9.c.(1)(b)	
26)	Firm Fixed Price [Sealed Bid]	9.c.(1)(c)	
27)	Selection on Price [Sealed Bid]	9.c.(1)(c)	
28)	Discussions Unnecessary [Sealed Bid]	9.c.(1)(d)	
29)	Advertised/Publicized	9.c. & d.	
30)	Adequate Solicitation	9.c.(2)(a) & 9.d.(2)	
31)	Sufficient Bid Time [Sealed Bid]	9.c.(2)(a)	
32)	Bid Opening [Sealed Bid]	9.c.(2)(c)	
33)	Responsiveness [Sealed Bid]	9.c.(2)(d)	
34)	Lowest Price [Sealed Bid]	9.c.(2)(d)	
35)	Rejecting Bids [Sealed Bid]	9.c.(2)(e)	
36)	Evaluation [RFP]	9.d.(1) & 9.d.(3)	
37)	Price and Other Factors [RFP]	9.d.(4)	
38)	Sole Source if Other Award is Infeasible	9.h.	
39)	Cost Analysis Required [Sole Source]	9.h.(2)	
40)	Evaluation of Options	9.i.(1)	
41)	Cost or Price Analysis	10.	
42)	Written Record of Procurement History	7.i.	
43)	Exercise of Options	9.i.(2)	
44)	Out of Scope Changes	9.h.	
45)	Advance Payments	12.a.	
46)	Progress Payments	12.b.	
47)	Time and Materials Contracts	7.j.	
48)	Cost Plus Percentage of Cost	10.e.	
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50)	Qualifications Exclude Price [A&E]	9.e.	
51)	Serial Price Negotiations [A&E]	9.e.	

No.	Element	FTA Circular 4220.1E Paragraph No.	Grantee Procurement Policy/Procedure Reference
52)	Bid Security [Construction over \$100,000]	11.a.	
53)	Performance Security [Construction over \$100,000]	11.b.	
54)	Payment Security [Construction over \$100,000]	11.c.	



SCAN TEAM REPORT

NCHRP Project 20-68A, Scan 07-02

Best Practices in Accelerated Construction Techniques

Supported by the

National Cooperative Highway Research Program

The information contained in this report was prepared as part of NCHRP Project 20-68A U.S. Domestic Scan, National Cooperative Highway Research Program.

SPECIAL NOTE: This report **IS NOT** an official publication of the National Cooperative Highway Research Program, Transportation Research Board, National Research Council, or The National Academies.



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The purpose of each scan and of Project 20-68A as a whole is to accelerate beneficial innovation by facilitating information sharing and technology exchange among the states and other transportation agencies, and identifying actionable items of common interest. Experience has shown that personal contact with new ideas and their application is a particularly valuable means for such sharing and exchange. A scan entails peer-to-peer discussions between practitioners who have implemented new practices and others who are able to disseminate knowledge of these new practices and their possible benefits to a broad audience of other users. Each scan addresses a single technical topic selected by AASHTO and the NCHRP 20-68A Project Panel. Further information on the NCHRP 20-68A U.S. Domestic Scan program is available at:

<http://144.171.11.40/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=1570>.

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Disclaimer

The information in this document was taken directly from the submission of the authors. The opinions and conclusions expressed or implied are those of the scan team and are not necessarily those of the Transportation Research Board or its sponsoring agencies. This report has not been reviewed by and is not a report of the Transportation Research Board or the National Research Council.



Scan 07-02 Best Practices In Accelerated Construction Techniques

REQUESTED BY THE

American Association of State Highway and Transportation Officials

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November 2009

The information contained in this report was prepared as part of NCHRP Project 20-68A U.S. Domestic Scan, National Cooperative Highway Research Program.

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ABBREVIATIONS AND ACRONYMS

Abbreviations and Acronyms

A+B	Cost and time
AASHTO	American Association of State Highway and Transportation Officials
ABC	Accelerated bridge construction
ACB	Asphalt concrete base
ADOT	Arizona Department of Transportation
ADT	Average daily traffic
AGC	Associated General Contractors
ALDOT	Alabama Department of Transportation
ASCE	American Society of Civil Engineers
Caltrans	California Department of Transportation
CA4PRS	Construction Analysis for Pavement Rehabilitation Strategies
CAR	Contamination assessment and remediation
CCO	Contract change order
CEI	Construction, engineering, and inspection
CM/GC	Construction Manager General Contractor
CRIP	Cost reduction incentive proposal
DB	Design-build
DBB	Design-bid-build
DOT	Department of Transportation
FDOT	Florida Department of Transportation
FHWA	Federal Highway Administration
GEC	General engineering consultant
I/D; I/Ds	Incentive/disincentive; incentives/disincentives
IH	Interstate Highway
JV	Joint venture
LCB	Lean concrete base
Mn/DOT	Minnesota Department of Transportation
MOT	Maintenance of traffic
MSE	Mechanically Stabilized Earth
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
PDA	Pile-driving analyzer

ABBREVIATIONS AND ACRONYMS

PIO	Public Information Officer
PRS	Pavement rehabilitation strategy; performance related specification
PS&E	Plans, specifications, and estimate
RFP	Request for proposals
RO/RI	Roll-out/roll-in
ROW	Right-of-way
SFOBB	San Francisco-Oakland Bay Bridge
SOC	Subcommittee on Construction (AASHTO)
SP	Steel pipe
SPMT	Self-propelled modular transporter
STIP	Statewide Transportation Improvement Program
TCP	Traffic control plan
TIP	Transportation Improvement Plan
TRB	Transportation Research Board
TxDOT	Texas Department of Transportation
UDOT	Utah Department of Transportation
VE	Value Engineering
WSDOT	Washington State Department of Transportation



EXECUTIVE SUMMARY

Executive Summary

A typical highway project, allowing for planning, design, and construction, can take from 10 to 15 years from its inception to completion of construction. This extended duration has very real consequences for the American public. Therefore, transportation agencies are seeking ways to accelerate project delivery. This scan documents case studies that demonstrate how transportation projects can be delivered much more rapidly.

Background

This scan focused on construction operations and management practices to accelerate the delivery of construction projects. Visiting five states from the East to West Coasts, the scan team sought information from DOT staff and contractors on practices that accelerate project construction. The team visited with transportation leaders in:

- ❖ Jacksonville and Pensacola, Florida
- ❖ Birmingham and Montgomery, Alabama
- ❖ Houston, Texas
- ❖ Salt Lake City, Utah
- ❖ Sacramento and Oakland, California

Transportation agency representatives, contractors, suppliers, and engineering consultants having accelerated project experience shared their viewpoints and knowledge at meetings with the scan team. The team then evaluated these practices for their potential application by other transportation agencies.

Summary Observations

The team found that, for every project examined, the primary factor leading to success was a spirited effort of partnership and collaboration between the DOT and the contractor, together with a supportive design and/or design process. The following summary observations are the principal findings of the study.

Partnering – People

People are the critical element in successfully accelerating a project. Formal partnering is a beginning, but partnering is more than meetings. To accelerate a project, all team members must agree to solve issues at the lowest level and, after contract award, there must be an openness to change as more detailed project information becomes available. During these projects, every team member must exercise tremendous attention to detail and commit to a project-focused, unselfish effort to ensure that there are no interruptions in moving the construction forward. On many projects, the co-location of the DOT and contractor facilitated the partnering atmosphere. Partnering keys include:

- ❖ **Align goals to customer goals** – Develop procurement, contract provisions, and construction management methods that better align the goals of the customer, owner, and contractors. Move towards integrated teams that are formed early and focus on customer goals throughout the project development and construction life cycle. The process must begin with disciplined risk assessment and strategic project delivery decisions. These early decisions need to be supported through procurement and construction management techniques that support and motivate the teams to achieve customer goals.
- ❖ **Delegate to the lowest level** – Empower the appropriate people to make immediate decisions.
- ❖ **Timely decisions** – Have technical expertise at the project site or available at all times.

Design – Material Availability, Fabrication Time, and Logistics

Contractors must be able to procure the necessary project materials expeditiously. Designers must consider the availability of materials and the difficulties of moving and handling items such as bridge girders and precast elements. Logistics issues must be considered when selecting a design approach. Construction speed is achieved when the design allows repetition of activities. Designers should always review the standard specifications for opportunities to remove barriers to acceleration.

Planning Detailed

A detailed execution plan is a critical component of the acceleration effort, and that plan must be updated regularly.

- ❖ Include suppliers, fabricators, and equipment suppliers in the planning.
- ❖ Develop contingency plans for all possible impediments.
- ❖ Schedule concurrent activities to speed the work
- ❖ Open multiple fronts to push construction activities with more crews and equipment..
- ❖ Require that look-ahead plans be prepared at regular intervals.

Contracting Strategy –Aligned with Requirements

The contracting method needs to be aligned with the project's technical requirements, and the time constraints, type of work, traffic, and project site conditions. Allocate risk to the party best able to exercise control. Set an aggressive schedule with proper incentives, and contractors will respond to the need for acceleration. The contract must clearly define work restrictions (e.g., work hour restrictions, vibration and noise restrictions, and any regulations that will limit work or logistic activities). The use of design-build (DB) contracting will facilitate the introduction of innovation in design and construction.

New Business Model – Serve the Public

Agencies can respond to the market of public desire. Going from accelerated project construction to an accelerated project delivery attitude is possible if an agency thinks in terms of a systematic and holistic delivery approach. The lowest total project delivery cost should drive design and construction and include consideration of societal cost. When an agency involves the community, local governmental entities, and regulatory entities, and establishes project goals aligned with those interests, construction acceleration will reduce the overall cost to the community. “The public can tolerate an awful lot if you tell them ahead of time and how long.”

Emergency Projects

Successful delivery of accelerated projects under emergency conditions is highly dependent upon these underlying factors:

- ❖ **Contractor** – Find a contractor that has the resources to start immediately. The contractor must have the technical capability together with the ability to mobilize the necessary people and equipment rapidly. The contractor must also have the financial capacity and established trust with suppliers and fabricators so that critical material will move with only a phone call. Communication with the DOT, engineering support, suppliers, and fabricators is critical and sometimes, in the case of emergency projects, the contractor may have to assume responsibility for establishing a communication network.
- ❖ **Experts** – Timely decisions are crucial to accelerated project completion. In the case of an emergency project, communication can be difficult and distances can create time lags; therefore, ensure that key

experts are located on the project or are immediately accessible. Decisions are best made on the project site by experts who understand all of the issues.

- ❖ **Agreement** – Develop the agreement on site with the parties responsible for execution.
- ❖ **Delgate** – Push decision making, including contract award and execution, to the lowest possible level. Empowering project personnel and the designer of record to make project decisions accelerates the work.
- ❖ **Design-Build** – Scope for the basic need and allow the contractor to develop solutions. Often design is controlled by available materials that can be drawn to the project site.

Conclusions

Much more up-front planning is required to successfully complete emergency or planned projects that require accelerated construction. Contractors seeking to accelerate their work will have to develop their construction process plans to a much greater level of detail. Additionally, the DOT must research available materials before developing a facility design.

The foundation of accelerating project construction is a design based on resources that can be moved quickly to the project site. As protection against problems that can be caused by project unknowns, the design team should strive for a conservative design. The designer must maintain flexibility in the design approach. There is going to be change and the design must be such that it can easily accommodate adjustments.

Accelerated construction is about minimizing time impacts to the public. When goals are aligned and a partnering atmosphere created, all team members view the accelerated work as an opportunity to demonstrate excellence. As the owner of one company that delivered an accelerated project ahead of schedule stated, “It’s not about making a huge profit. It’s about pride and reputation.” The Chief Engineer for the DOT affirmed that attitude.

Introduction

Background

The planning and implementation of a complex construction project involves bringing together a diverse and dedicated team with complementary skills. Applied in concert, individual skills improve the effectiveness and efficiency of project delivery.

A number of DOTs have considerable experience with accelerated construction strategies. The California Department of Transportation (Caltrans) has had a number of accelerated construction paving projects and is the lead state for a Pavement Technology Consortium effort that includes the Washington State Department of Transportation (WSDOT), the Minnesota Department of Transportation (Mn/DOT), and the Texas Department of Transportation (TxDOT). The consortium has accomplished considerable work with accelerated pavement rehabilitation. The software “Construction Analysis for Pavement Rehabilitation Strategies” (CA4PRS) that was developed as part of this effort estimates how much pavement can be rehabilitated under a variety of traffic closure scenarios (e.g., nights, weekends, and full closures), construction schemes (i.e., concurrent or consecutive activities), and materials choices (e.g., fast-setting cements versus Type II Portland cement).

The Utah Department of Transportation (UDOT) is committed to making accelerated bridge construction the standard in Utah. UDOT envisions that it will be able to quickly assemble project plans and specifications for cost-effective, long-lasting bridges that are built rapidly while minimizing traffic disruption and congestion. Furthermore, these accelerated practices will provide improved work site safety.

Florida, Alabama, and Texas have completed in the last several years major projects that involved many aspects of accelerated construction. These projects served as the proving ground for acceleration approaches and methods. The Florida Department of Transportation (FDOT) replaced the Duval Street Bridge in Jacksonville during the off-season when the stadium to which it provided access was not being used for sports events. This was a project specifically planned for accelerated delivery. When on two occasions a fuel truck collision damaged a bridge at the I-65/I-59 interchange in Birmingham, the Alabama Department of Transportation (ALDOT) dedicated the necessary staff resources to accelerated project delivery under emergency conditions. Caltrans and TxDOT have had similar emergency bridge replacement projects, both in rural and urban settings. FDOT faced a much larger challenge when Hurricane Ivan destroyed the 2.5-mile long I-10 Bridge over the Escambia Bay in Pensacola.

Purpose and Scope

The purpose of this scan was to identify construction operational and management practices that support accelerated project construction and delivery. The scan began with the idea that the team would find agencies using new materials and contractors exploiting equipment innovations to accelerate projects. However, it soon became clear that successful project acceleration is achieved through a partnering atmosphere and selecting the appropriate contracting method that encourages a contractor to expend the planning effort and necessary resources to reduce construction time.

The scan team traveled across the United States to study experiences with accelerated construction both in emergency situations and in planned construction. It investigated construction activities for bridge construction, including the use of prefabricated components and heavy cranes/transporters. In the case of pavement construction, activity sequencing as it impacts highway closure duration and pavement sections was studied. Additionally, the team examined a tool to evaluate construction and traffic control plans.

The team evaluated practices for their potential application by transportation agencies in response to an emergency and as a way to deliver critical projects with minimum disruption to highway users. Over a two-week period, members of the team met with agencies, consulting engineers, contractors, and suppliers having experience in delivering accelerated projects. The scan team and meeting participants shared viewpoints and experiences in mutually beneficial exchanges.

Methodology

This scan employed a two-tier methodology of literature review and on-site interviews with experienced professionals. The literature review and resulting desk scan report provided the team with information for selecting locations meriting site visits. This methodology combined data from previous project reports with information gained through face-to-face interviews with government agencies and individual professionals and experts having first-hand knowledge and experience with accelerated construction practices.

Given the wide variety of scan topics and the relatively short time period for collecting information, this report is not an all-inclusive study of current activities. Rather, it provides information and an analysis of the key factors that lead to successful delivery of projects when time is of critical importance. The scan team has used its professional expertise and experience to derive qualitative judgments concerning acceleration practices.



Figure 1.1 *Accelerated Construction Scan Team*

The scan team was led by three co-chairs: Christopher Schneider (Construction & System Preservation Engineer, FHWA), Thomas Bohuslav (Director of Construction, TxDOT), and Brian A. Blanchard (Chief Engineer, FDOT). They were joined by two other DOT representatives and one member from a Turnpike Authority. The team represented a cross-section of transportation agency professionals. The team was supported by two subject matter experts who prepared the desk scan report and served as recorders during the scan. The team members are shown in Figure 1.1, and their affiliations are listed below. Biographical sketches and complete contact information for the scan team members are provided in Appendix A and Appendix B, respectively.

Front Row, left to right:

- ❖ Brian A. Blanchard, P.E. (AASHTO Co-Chair), Chief Engineer, Florida Department of Transportation
- ❖ Christopher Schneider (FHWA Co-Chair), Construction & System Preservation Engineer, Federal Highway Administration
- ❖ Narendra Khambhati, P.E. (Coordinator), Senior Vice President, Arora and Associates, P.C.

Back Row, left to right:

- ❖ Richard Sheffield, P.E., Assistant Chief Engineer – Operations, Mississippi Department of Transportation

- ❖ George Raymond, P.E., Division Engineer, Construction Division, Oklahoma Department of Transportation
- ❖ Thomas Bohuslav, P.E. (AASHTO Co-Chair), Director of Construction, Texas Department of Transportation
- ❖ Steven D. DeWitt, P.E., Chief Engineer, North Carolina Turnpike Authority
- ❖ Cliff J. Schexnayder, Ph.D., P.E. (Subject Matter Expert), Eminent Scholar Emeritus, Arizona State University

Not pictured:

- ❖ Stuart Anderson, Ph. D., P.E. (Subject Matter Expert), Zachry Professor in Design and Construction Integration II, Texas A&M University

Subject Matter Experts prepared a “desk scan” to select the most appropriate agencies for the scan team to visit. The object of the desk scan was to maximize the time spent by the team assessing topics of interest. The desk scan was compiled using a three-tier methodology of literature review, expert interviews, and a synthesis of practices. The methodology provided for data collection from government agencies, professional organizations, and experts with personal experience with accelerated construction. This information was assembled by a review of construction literature and through Internet contact with 16 agency and construction executives knowledgeable about accelerated construction practices around the world (Appendix C).

The desk scan identified practices in the areas of:

- ❖ Prefabricated components for bridges
- ❖ Heavy cranes/transporters for bridges
- ❖ Pavement construction
- ❖ Supporting products and technologies
- ❖ Contractor perspectives

The scan bibliography is provided in Appendix D. The desk scan identified agencies with accelerated construction experience under both emergency conditions and as a planned project delivery method. The scan team used the desk scan document to select host transportation agencies (Appendix E) and to draft a series of amplifying questions to further define the panel’s objectives. Appendix F contains the amplifying questions that were sent to the host agencies before the visits.

Although many DOTs could provide meaningful information on accelerated construction, the scan tour’s time limitation meant that the scan team had to select the most significant opportunities to gain the maximum amount of information during its site visits. The team’s primary targets were agencies with the most intense experience in the widest variety of areas, including accelerated bridge construction under emergency conditions, heavy lifts, and the use of varied approaches to accelerated pavement construction. The team was seeking information about:

- ❖ Using different contracting methods for rapid construction
- ❖ Using precast components
- ❖ Making heavy lifts
- ❖ Staffing accelerated projects (because in many cases the contractor works 24 hours a day, 7 days a week)
- ❖ Setting the time portion for contracts for which contractors bid time

The delegation visited the southeast U.S. from March 1 through March 7, 2009, then the western U.S. from

CHAPTER 1 : INTRODUCTION

March 22 through March 28, 2009. Specifically, the scan team visited:

- ❖ Jacksonville and Pensacola, Florida
- ❖ Birmingham and Montgomery, Alabama
- ❖ Houston, Texas
- ❖ Salt Lake City, Utah
- ❖ Sacramento and Oakland, California

The visits consisted of a combination of site visits and meetings with highway agency personnel, contractors, fabricators, and design engineers.

CHAPTER 2

Emergency Accelerated Construction

Introduction

When Minnesota's I-35W Bridge across the Mississippi River in Minneapolis collapsed on August 1, 2007, the Minnesota Department of Transportation (Mn/DOT) was faced with the challenge of rapidly replacing a structure that carried more than 140,000 vehicles a day. The urgency of reopening the Interstate Highway (IH) was heightened because the loss of the bridge increased commuter costs significantly and put a severe traffic burden on surrounding roads.

Mn/DOT chose to accelerate the delivery of the I-35W Mississippi River replacement bridge project using the DB procurement method. A casting yard for the precast concrete segments was set up on the closed interstate highway pavement just south of the bridge and the segments were delivered to the bridge construction location by barge. By these efforts, Mn/DOT and its contractor were able to complete the replacement bridge in less than a year (see Figure 2.1).

Many other DOTs have faced similar situations where a river crossing or roadway needed to be reopened with only minimum inconvenience to the traveling public after a sudden event had severely damaged or destroyed the system structure. The scan team, therefore, sought to identify the key factors that led to a DOT's success in delivering an emergency project under emergency conditions. The underlying fundamentals of success that the team identified are listed at the end of each of the individual project sections that follow.



Figure 2.1 *Construction of the I-35W Bridge in Minneapolis*

Replacement of the I-65/I-59 Interchange Bridges, Birmingham, Alabama

On Saturday morning, January 5, 2002, a tanker truck loaded with gasoline crashed into a bridge pier in the northbound lanes of Interstate 65, killing the driver. The fiery crash (see Figure 2.2) virtually destroyed the overhead steel girder bridge carrying the southbound lanes of I-65. This location in the I-65/I-59 interchange handles 240,000 vehicles per day (100,000 on I 65 and 140,000 on I-59/I-20). Temperatures in excess of 2,000 °F caused the bridge girders to sag 8 feet and extensively damaged the columns, caps, and pavement.



Figure 2.2 Gasoline tanker truck on fire under the bridge

Project Description (The First Time)

The replacement three-span, 290-ft bridge designed by ALDOT was longer and wider to provide additional future lanes for southbound traffic on the bridge and for northbound traffic moving under the bridge. Design options considered included:

- ❖ Replacing Spans 1 and 2 and bent 2 only using plans from the original bridge (i.e., replace in kind, steel girders)
- ❖ Replacing the entire bridge with a one-span bridge with steel girders perpendicular to the roadway (eliminating skew)
- ❖ Replacing the entire bridge using three-span AASHTO Type IV modified PSC girders

The ALDOT decided to use a precast concrete girder design to replace the bridge because the girders could be fabricated and delivered to the site faster than steel. ¹

¹"Precast Helps Rebuild Bridge in Record Time," Ascent, Precast/Prestressed Concrete Institute, Chicago, IL., Summer 2002, www.pci.org/view_file.cfm?file=AS-02SU-5.PDF

Project Execution

The main span required 15 140-ft-long girders. The original ALDOT design was for AASHTO Type IV modified girders but that was changed as a result of a value engineering (VE) proposal submitted by the contractor. The contractor's VE proposal specified modified bulb-tee girders (BT-54). These girders were 54 inches in height with an 8-inch web, a 44-inch top flange, and a 28-inch bottom flange. A standard BT-54 has a 6-inch web, a 26 -inch bottom flange, and a 42-inch top flange. The design required an increase in the cross-sectional properties of the standard BT-54 in order to provide the structural capacity needed for the 140-foot span. This modified section also provided better lateral stability during transport and erection of the girders. The two end spans each required eight standard BT-54 girders 70 feet 2 ¾ inches long.

This was a calendar day project, and the contractor received an early completion incentive bonus of \$1.3 million as shown in Table 2.1. To complete the project, the contractor drove 160 HP 12 × 53 steel piles, placed approximately 820 cubic yards of substructure concrete, and 825 cubic yards of superstructure concrete. Fourteen hours were lost due to weather. The complete timeline is shown in Table 2.2

	Cost
Second low bid amount	\$3,780,654.15
Low bid	\$2,096,421.20
Incentive, 52 Days @ \$25,000	\$1,300,000.00
Total (low bid + incentive)	\$3,396,421.20
Net Difference (w/incentive in first and second bidder)	\$384,232.95
Square foot bridge cost	\$60 without incentives
Square foot bridge cost	\$97 with incentives

Table 2.1 *I-65 bridge replacement cost (2002)*

Date	Event	Day	Const. Day
5 Jan. 2002	Saturday morning; tanker accident 5 p.m., demolition work begins, DOT and contractor working together	1	
6 Jan. 2002	Sunday morning; Transportation Director and staff meet and decide to: <ul style="list-style-type: none"> ❖ Remove the entire bridge ❖ Design a new bridge (design/plans by ALDOT Bridge Bureau) ❖ Select five reputable bridge contractors to bid 	2	
7 Jan. 2002	Monday 9 a.m., I-65 NBL opens to traffic; work starts on design for new bridge	3	
8 Jan. 2002	Tuesday, preliminary plans to contractors	4	
10 Jan. 2002	Thursday, demolition completed	7	
12 Jan. 2002	Saturday, p.m., complete plans to contractors	8	
14 Jan. 2002	Monday 1 p.m., pre-bid with five contractors	10	
16 Jan. 2002	Wednesday 10 a.m., bids opened*	12	
18 Jan. 2002	Friday, notice to proceed†	14	
21 Jan. 2002	Monday 12:01 a.m., construction begins	17	1
7 Feb. 2002	Thursday 8 p.m., northbound lanes of I-65 closed to set girder over the travel lanes. All 15 140-ft girders in place before dawn on 8 Feb.	34	18
26 Feb. 2002	Paving and striping completed	53	37
27 Feb. 2002	Opens to traffic (54 days after the accident)	54	38
* By state law, if an emergency occurs, the Director of Transportation has to write a letter to the Finance Director stating that the Department is operating in an emergency. Headquarters in Montgomery decides who gets a contract, but the recommendation is made locally.			
† The director awards the contract, but the governor signs all contracts and all supplemental agreements.			

Table 2.2 I-65 bridge replacement timeline (2002)

Project Description (Déjà Vu: Same Interchange, Different Bridge)

On October 21, 2004, it happened again: a fully loaded tanker truck turned over on a ramp carrying the eastbound lanes of I-20 (see Figure 2.3). The tanker exploded in a ball of flame and again the bridge's overhead steel girders were severely damaged.

ALDOT engineers drew on their earlier experience and quickly chose precast concrete for the project. "We gave only a cursory consideration to steel. It would have taken far too long to replace the bridge with another steel-girder structure. Fabrication, erection, and painting of the bridge would have required two to three months."²



Figure 2.3 Sites of the 2002 and 2004 accidents

The second bridge replacement contract included an incentive clause that awarded the contractor \$50,000 per day for each day the project was completed prior to December 31, 2004. A disincentive clause was also included at \$50,000 for every day later than December 31 (see Table 2.3).

	Cost*
Second low bid amount	\$5,535,693
Low bid	\$5,450,000
Incentive, 27 Days @ \$50,000	\$1,350,000
Total (low bid + incentive)	\$6,800,000
*Total cost including bridge and road work	

Table 2.3 I-65 bridge replacement cost* (2004)

Project Execution

The precast concrete girders specified for this bridge replacement required a special design. Each of the three spans had 12 66-inch bulb tees. The girders had lengths of 87 feet 3 inches, 151 feet 3 inches, and 163 feet 9 inches. That final length, 163 feet 9 inches, was 25 feet longer than any girder ever shipped in the state. The components were specially modified, high-performance concrete (HPC), AASHTO-PCI modified bulb-tee 63 girders, to which 2 inches of width and 3 inches of depth were added for strength and to allow additional prestressing steel. The concrete strength requirement for the girders was 7,500 psi at release and 8,500 psi at 14 days.

²"Precast Aids Fast Track Bridge Replacement Again," Ascent, Precast/Prestressed Concrete Institute, Chicago, IL, Spring 2006, www.pci.org/pdf/publications/ascent/2005/Spring/AS-05SP-5.pdf

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The engineering manager for the prestressing yard said that, “At 2.9 million pounds, the prestressing was the highest force we ever pulled. We were concerned about the stability of the beams. We especially wanted to make sure that they would withstand shipping and erection.” To answer the shipping question, the fabricator conducted transportation tests in the yard prior to shipping the girders the 12 miles to the site. The first girders were delivered and set in place just 16 days after the contract was let; the final girders went into place just three days after that.

The fabricator used special 13-axle vehicles to deliver the beams to the site. The Alabama State Police provided escort service in addition to the usual escorts required for transit of oversize loads. The entire project was completed and the bridge reopened to all traffic on December 4 as shown in Table 2.4. This earned the contractors a \$1.35 million incentive. A comparison of the timelines for the two accelerated bridge projects is given in Table 2.5.

Date	Event	Day	Const. Day
21 Oct. 2004	Thursday tanker accident	1	
21 Oct. 2004	Demolition work begins	1	
22 Oct. 2004	Friday morning, started design for new bridge	2	
28 Oct. 2004	Thursday 10 a.m., pre-bid with invited contractors	8	
29 Oct. 2004	Friday 1 p.m., bids opened	9	
29 OCT. 2004	Friday 5:00 p.m., contract award. Completion date December 31, 2004 (62 days) with \$50,000/day I/D. Shop drawing approval	9	
30 OCT. 2004	Saturday, construction begins, prestress yard casts first beam	10	1
14 Nov. 2004	Prestress yard casts last beam, Span 3 beams delivered	25	16
16 Nov. 2004	Tuesday, Interstate closed to set girders	27	18
17 Nov. 2004	Span 1 and 2 beams delivered	28	19
3 DEC. 2004	Paving, striping completed 27 days ahead of schedule	44	35
4 DEC. 2004	Opens to traffic	45	

Table 2.4 *I-65 bridge replacement timeline (2004)*

Event	Time 2002	Time 2004
Demolition	6 Days	6 Days
Design and plans	8 Days	6 Days
Advertise and bid	2 Days	1 Days
Construction	37 Days	36 Days
Detour Maintenance	54 days	46 Days

Table 2.5 *I 65 bridge replacement comparison*

Synopsis of Acceleration Efforts

Partnership

The State Bridge Engineer said, “We did things we don’t normally do, working closely with each other and spending some weekends working out problems. It was refreshing to be that closely involved in a project.” Decisions were made at the project level; requests and approvals were given verbally. The local FHWA provided over-the-shoulder review and on-the-spot approval of the design decisions made by the State Bridge Engineer. Occasionally the contractor was not able to meet specified pile tolerances, so ALDOT had to reevaluate strength based on actual pile locations.

Mutual Trust

ALDOT met with contractors and suppliers the week after the accident to discuss replacement bridge design plans. With the information that came from those meetings, suppliers began preparations for casting the girders.

Fabricator Collaboration

The state also entered into discussions with fabricators about prestressed girder designs well before the letting. While the design was eventually changed, the discussions were invaluable in establishing a project schedule and facilitated timely material availability.

Cooperation

DOT guaranteed one-day turnaround of shop drawings and material certifications. Additionally, the City of Birmingham adjusted the timing of 35 surface-street traffic signals to accommodate the flow of detoured traffic.

Planning

The contractor stated, “We worked on a tight schedule and did a lot of planning.” ALDOT noted that the “contractor was very good at scheduling.” The contractor scheduled everything in hours from the start of the project and for all suppliers. Furthermore, the contractor took the approach that the job was a cost-and-time project.

Work Multiple Fronts

On the first project, 60 workers plus considerable equipment were working many parts of the project at the same time.

Methods

A separate demolition contract began almost immediately after the incident.

The highway contractor partnered with a vertical construction contractor that had an available labor force.

Precast box culvert sections were used as shoring and footing forms (see Figure 2.4). Precast elements helped to speed construction.

An accelerator was used to obtain high early strength (7,500 psi release strength). As soon as the required strength was achieved, crews moved forward instead having the normal wait for curing. For this project, the fabricator put together a detailed production schedule. Acceleration raised the cost of the girders 1.4 times the normal selling price.

Many of the old piles were pulled, which made the foundation design simpler.

The state furnished the elastomeric bearings.

Only one ready-mix plant was used, and it was within visual distance of the project.

The contractor worked 24/7 until the very end of the project.



Figure 2.4 *Using precast box culvert as forms*

Traffic Management

Local media were a great help in educating the public and keeping it informed about the detour routes the DOT established. Additionally, ALDOT created a Web site to inform the public about detours and progress.

Right-of-Way/Environmental

No additional right-of-way (ROW) had to be purchased, and no environmental permitting was required.

Bonding

By requiring the contractors to bring the required contract bonds to the bid, ALDOT was prepared to award the contract as soon as the bids were evaluated.

Implementation of New Technology

The prestressed girder fabricator had been involved with an ALDOT HPC Showcase event years before that provided experience with 9,000 psi in 24-hour mixes. With that knowledge and ALDOT approval, the fabricator decided to implement this mix design for the project.

Project Delivery

Design-bid-build (DBB) was used for this project because of its limited scope and because the only critical aspect was material availability.

Underlying Fundamentals of Success

Teamwork is always the key element to a successful execution of an accelerated project. Both of these bridge contracts were held by the same two contractors in joint venture (JV). The success of the projects can be traced directly to the fact that both ALDOT and the contractor placed focused teams on the projects. These teams continually displayed mutual understanding and teamwork. Everyone understood the urgency of the projects and the need to open the interstate to traffic.

The design that was produced by ALDOT used materials that the department knew could be procured in the shortest timeframe – precast concrete girders. ALDOT also had the capability to produce a full design in only four and a half days.

Detailed planning and scheduling allowed the contractor to effectively attack the work on multiple fronts. The smaller JV partner (in terms of contractor volume) was a veteran bridge builder with years of experience on DOT projects. This partner, which was familiar with DOT contracting requirements, managed the projects. The other partner was a general contractor with diverse experience building health-care, industrial, office, institutional, retail, educational, and water-treatment facilities. This second contractor had little DOT experience but brought a higher standard of scheduling practice to the team.

Together the two contractors created a schedule that displayed activities by the hour.

Contractor capacity is a crucial component to successfully completing an accelerated project. Contractors must have the ability to draw people and staff the projects as necessary and an equipment fleet that can support the activity demands of working on multiple fronts. In the case of large projects, only a contractor or JV with a large capability in terms of workforce and equipment inventory has the capability to execute an accelerated project. For smaller projects, experience with transportation projects and DOT contracting requirements becomes an important selection factor. However, as these two bridge projects demonstrate, there are many ways to bring critical resources to a challenging project.

A unique aspect of the first bridge replacement contract was the use of a vertical construction contractor to furnish the labor force. Most states would question the ability of a contractor unfamiliar with highway construction to handle such a project, yet the close coordination between the JV contractors made their workforce efforts a success.

Repair and Replacement of the I-580/880 MacArthur Maze, Oakland, California

The MacArthur Maze, commonly referred to as the Maze, is a series of major interchanges east of the San Francisco-Oakland Bay Bridge (SFOBB) that distributes traffic to east-Bay freeways. The Maze connects Oakland, Berkeley, and San Francisco via five major highways. It handles approximately 80,000 vehicles daily.

At 3:41 a.m. on Sunday, April 29, 2007, a tanker truck carrying 8,600 gallons of gasoline overturned on the southbound I-880 connector structure, spilling its cargo and catching on fire. The fire reached temperatures in excess of 1,500 F, which caused the structural steel in the I-580 connector immediately above the burning truck to soften and eventually collapse (see Figure 2.5).

This collapse closed both the southbound I-880 and eastbound I-580 connectors, interrupting SFOBB traffic as shown in Figure 2.6. The portion that collapsed was built in 1955 and underwent a major seismic retrofit after the 1989 Loma Prieta earthquake.

The collapsed 160-foot long portion of I-580 was 51 feet wide and encompassed the steel girders on both sides of the bent as well as the bent cap. The failed spans had six steel girders with a 45 foot-wide concrete deck. The I-880 connector sustained less damage.

Project Description

The governor issued an emergency declaration, and Caltrans began immediate repair and replacement of the interchange. This declaration streamlined public contracting and environmental codes and provided emergency funding to allow repair operations to begin the day of the accident. The emergency declaration also authorized funding to provide free transit services in the Bay Area for Monday, April 30. Statutes that allowed for expedited environmental, public involvement, and contracting procedures are critical to emergency contract success.

A \$2 million emergency demolition contract was awarded the day of the accident to demolish the damaged structure. Demolition work began that Sunday afternoon. Additionally, another contractor began shoring up the I-880 roadway early the following morning with temporary supports so demolition could continue.

Caltrans brought a consulting engineering firm to the site the day following the fire to provide on-site emergency structural engineering services. That firm worked throughout the following days to obtain concrete column core samples for testing and to accurately document the extent of the fire damage to the structural elements. The concrete cores were shipped to laboratories in Cleveland, Ohio; Northbrook, Illinois; and Austin, Texas, for expedited petrographic studies and compressive strength testing. The engineer provided Caltrans a comprehensive report on the affected elements just five days after the fire. Based on the engineer’s testing and analyses, Caltrans was able to open the I-880 connector eight days after the fire.

On the afternoon of the accident, Caltrans management rushed to its offices in Oakland and Sacramento and set up a teleconference between the emergency response units to determine the composition of the team needed to handle immediate replacement of the bridge. Communication went out to all staff members who would be working on this emergency project to report to work early Monday morning for a briefing on the project



Figure 2.5 MacArthur Maze bridge damage



Figure 2.6 Location of the I-580/I-880 MacArthur Maze bridge

and to start the bridge-type selection process. Caltrans Structural Maintenance engineers began the work by locating the plans for the Maze bridges. As-built plans identified the structural steel in the I-580 connector as ASTM A7. ASTM A7 is a legacy specification, commonly used at that time until it was replaced by ASTM A36 in 1960. The structure consisted of steel stringers with a reinforced concrete deck supported by column bents with steel caps. In 1993 and 2001, Caltrans retrofitted this structure to seismic standards by adding steel column casings and bridge joint restrainer brackets. Well in advance of the letting, Caltrans put significant effort into coordinating with suppliers for prefabricated products.

By viewing the damage on television and by the use of Web cameras together with calls from the engineers at the bridge, the designers began preparing plans for replacement bridges (only the I-580 became necessary). Caltrans' ability to quickly procure the steel was the critical factor governing construction time to complete the two-span I-580 bridge. The design, therefore, conformed to currently available materials that could easily be fabricated immediately.

On the day of the accident, Caltrans officials mobilized a worldwide search to assess steel availability and fabrication capabilities. This information, gathered within two days, became a critical guide for engineers selecting the reconstruction alternatives.

Caltrans design staff members arrived early Monday morning (April 30) for the briefing and began their structure-type selection process. This process helped the Caltrans design engineers in the selection of the correct structure type. By mid-afternoon, the structure type and alternatives were selected and the design begun. The engineers considered precast concrete girders, but decided against this idea because it would require foundation enhancement to support the additional weight. The replacement design, therefore, mirrored the original bridge: 12 steel girders and a 55½ foot bent cap. The cap was placed on the existing steel-jacketed retrofitted columns.

The engineers debated whether to build a precast, prestressed concrete bent cap or to replicate the existing steel box bent cap. A steel bent cap design would have required fracture-critical fabrication, use of certified steel plate, and additional inspection criteria. This likely would have delayed the project due to material procurement difficulties and stringent fabrication requirements. In the end, Caltrans designed both precast concrete and steel bent cap alternatives and left the final decision of the bent cap type to the contractor.

It should be noted that design for the replacement of the adjacent bent caps was started while the inspection was still underway in case the caps were not repairable. Fortunately, the damage to those two bent caps was repairable, but both concrete and steel bent cap replacement alternatives were well underway when this was determined.

Project Execution

Several different contracting methods were considered for the reconstruction contract: force account, force account with incentive, informal bid with incentive, and informal bid with A+B.

Caltrans presented the following decision matrix:

- ❖ Force account contracting was ruled out to allow competition between contractors to drive the best possible bid price and early completion date.

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- ❖ A+B bidding was ruled out since the contract was not estimated to take more than 50 days and, given the short duration contractors had to prepare bids, they would be conservative on bidding the number of days to complete the work and then would not complete the project faster than necessary.
- ❖ An incentive-based early completion date was ultimately chosen to allow the contractor to work as fast as possible and as economically as feasible.

Three contract addendums were pre-scheduled:

- ❖ Friday, May 4
- ❖ Saturday, May 5, at 9 p.m.
- ❖ Sunday, May 6, at 6 p.m.

At 10 a.m. Monday, May 7, Caltrans bid the I-580 bridge replacement. This project was let as an invitation-only bid. Nine proven and experienced bridge contractors who work in the area were invited to bid. Eventually only seven submitted bids (one declined the invitation and another withdrew before the site visit). There was a mandatory pre-bid conference at the project site on Saturday afternoon and a mandatory small business outreach meeting. Over the next day Caltrans provided immediate responses to bidder inquiries. The project was advertised with a \$200,000 per day incentive/disincentive clause capped at a \$5 million maximum. The contract time was set up for 70 calendar days with an internal milestone of 50 calendar days for opening the bridge to traffic. In addition, the contractor would be fined \$200,000 for every 10 minutes the short-duration lane closures were not reopened to traffic.

By creating bonus incentives of up to \$5 million, nearly 100% of the state's estimated cost for construction of the project, the state clearly conveyed that it placed a high value on project completion speed.³ The contract set a construction completion deadline of re-opening I-580 on June 29 (53 calendar days). The bids and costs are compared in Table 2.6.

	Cost
Engineers' estimate	\$5,140,070
High bid	\$6,484,000
Fourth low bid	\$2,368,930
Third low bid	\$1,444,444
Second low bid	\$1,117,777
Low bid	\$867,075
Incentive received	\$5,000,000
Total anticipated amount	\$5,867,075

Table 2.6 *I-580 bridge replacement cost*

³Bleharski, Josh, Brian Gross, Erik Hebert, and Leif Kalberg, "A-MAZE-ing Game Theory: How California Turned the MacArthur Maze Collapse into a PR Success," paper for MBA 211, Game Theory, University of California at Berkeley, http://faculty.haas.berkeley.edu/rjmorgan/mba211/2008%20Projects/Mac_Maze_Paper.pdf.

Within hours of the award, at approximately 3:30 p.m., the contractor had crews on site and the concrete beam fabricator was working to produce the 243,750-pound bent cap that would have to be placed before the girders could be installed. The steel fabricator found the 2-inch plate for the bottom flange of the girders in Pennsylvania and the necessary ½-inch and 1-inch plate in Texas. These materials were immediately shipped to the fabricator by truck. Each truck had two drivers so the trip could be made with fewer stops. Early coordination by Caltrans with the fabricators assisted project materials need planning.

One day after contract award, Caltrans had a senior reviewer at the steel fabricator's shop full time to provide immediate guidance for welding and shop plans. In order for Caltrans to meet the one-day review times, its engineers directly solicited draft copies of all welding submittals. In this way, Caltrans provided the fabricator immediate feedback, often before the official copy was even submitted.

Three days after contract award, Caltrans and contractor representatives conducted a pre-welding meeting on site at the steel fabricator shops in Arizona. The steel from Pennsylvania arrived the same day. Caltrans provided the fabricator with review comments on its Welding Quality Control Plan, to which the fabricator was able to respond immediately. By the end of this meeting, Caltrans officials were satisfied with the fabricator's plan, and fabrication began that evening.

Caltrans maintained a constant presence with Quality Assurance Inspectors on the shop floor. This proved to be critical to the success of steel girder fabrication. Designers were available at all hours and, together with the Materials Engineers, they quickly worked through issues.

“Caltrans came in and put good people in our shop. If there were any problems, we could go to them and get immediate answers. Usually it takes weeks. It was a breath of fresh air to have a government agency come in and perform like that.”

—President of the steel fabricator firm

The fabricator worked two 10-hour shifts and loaded the first two girders on trucks seven days into the contract. The plate girders were 42 inches tall, with the longest one measuring 90 feet. They were constructed from A709 Grade 50, a high-strength, low-alloy structural steel. All 12 girders were finished in nine days. They then went to Vallejo, California, to be painted.

The bent cap beam arrived eight days after contract award. The 18-axle truck transporting the beam was not permitted on I-580 over Altamont Pass and had to use rural roads to deliver the bent cap. Two days later the first steel girders were set during a night closure. As soon as a pair of girders was secured, the contractor's workers swarmed the steel, installing the deck formwork and reinforcing steel. Typically, a contractor would have waited for all of the girders to be in place before starting the formwork. This project's contractor was good at coordinating and eliminating waiting time between activity transitions.

The day after the last girder was installed, the deck pour was completed. The slab strength came up to 3,500 psi in 48 hours, but Caltrans delayed the bridge opening by requiring 96 hours of cure time under burlap to keep the deck damp as a measure to prevent cracking. Table 2.7 is a summary timeline of the MacArthur Maze project.

Date	Event	Day	Const. Day
29 Apr. 2007	Sunday, 3:41 a.m.: Tanker accident; demolition work begins Phone calls and e-mails to key Caltrans staff to assemble	1	
30 Apr. 2007	Contractor shores I-880 bridge Caltrans locates steel In Sacramento, design team begins studying feasible designs	2	
1 May 2007	Clean-up and inspection	3	
3 May 2007	I-580 contract advertised; Caltrans uses same design	5	
4 May 2007	Caltrans receives petrographic study report	6	
5 May 2007	Mandatory on-site bid conference for I-580 I-880 deck repaired.	7	
6 May 2007	I-880 girders heat straightened Adjacent bent caps repaired Addendum #3 sent at 9:30 p.m.	8	
7 May 2007	Monday, 5 a.m.: I-880 reopens 10 a.m.: I-580 bridge bid opens. 3:30 p.m.: I-580 bridge bid is awarded; contractor is on site almost immediately	9	0
8 May 2007	First workday	10	1
10 May 2007	Pennsylvania steel arrives at fabricator in Arizona	12	3
11 May 2007	Girder fabrication begins	13	
15 May 2007	Precast bent cap arrives at night	17	8
17 May 2007	I-880 closed from 8 p.m. Thursday to 5 a.m. Friday to set the steel girders	19	10
19 May 2007	I-880 closed from 8 p.m. Saturday to 9 a.m. Sunday to set the last four steel girders	21	12
20 May 2007	Concrete deck is placed from 4 p.m. to 7:30 p.m. Sunday	22	13
24 May 2007	Opens to traffic at 8:40 p.m. Thursday (96 hours after pour)	26	17
25 May 2007	Opens to traffic in time for Memorial Day weekend	27	
26 May 2007	Ceremonial reopening		
21 June 2007	Project accepted		

Table 2.7 I-580 MacArthur Maze timeline

Synopsis of Acceleration Efforts

Mutual Trust

The contractor for this project had significant experience with similar types of emergency projects. The firm was the lead contractor in the Santa Monica Freeway reconstruction after the 1994 Northridge earthquake and the Geyserville Highway 128 bridge reconstruction after its collapse in 2006.

Incentive/Disincentive

The collapse of these structures had a significant impact on the entire Bay Area. The loss of the connector was estimated to have a total economic impact to the Bay Area of \$6 million a day. Thus, the state viewed the contract in terms of the respective payoffs for the state and the contractor. Every day earlier than June 29 that the freeway opened was effectively worth a \$6 million payoff to the state. From the contractor's perspective, without the incentive, its payoff is completely independent of time.

Availability of Materials

Caltrans and the contractor carefully analyzed the availability of steel plate. Caltrans matched the bridge design to the available steel. By working with the fabricator, the contractor expedited delivery of the needed steel ahead of the letting.

Design

Rolled shape sizes were not known to be readily available and would have required several weeks for fabrication; hence, the design team decided to proceed with built-up sections. In addition, to reduce the number of stiffeners required for local buckling checks and to reduce the amount of welding required on built-up girders, the web thickness was increased. The flange plates were kept to only one size to simplify the fabrication. The web depth was adjusted to ensure that the overall depth would not require adjustment of the existing bearings that were to be reused.

Contractor Team Effort

The contractor agreed to share 25% of the profits with the steel fabricator. Similarly, in terms of aligning incentives, the contractor shared a percentage of the project's profits with its employees to provide incentive to work around the clock to beat the incentive deadline.

DOT and Contractor Team Effort

Caltrans had three shifts of field engineers, including a Senior Bridge Engineer and a Senior Transportation Engineer, on site for each shift. Daily video conferences were used between project team members from the project's inception. Caltrans provided rapid shop drawing approval and had people at the fabrication site.

Additionally, in this specific instance, Caltrans allowed an exception to its specification compressive strength requirements (Section 90) to apply to the 96-hour limit instead of a 28-day limit. Caltrans permitted the contractor a couple of mix design options. The one that was chosen essentially eliminated the Caltrans requirement for supplementary cementitious material and added a shrinkage-reducing admixture (SRA) that was not on the list of pre-approved admixtures.

Communication Tools

All contractor submittal reviews were limited to 24 hours. E-mail and electronic transmission of documents were critical to meeting these review times. Pre-reviews of these documents were also helpful, and most reviews were

completed prior to submission of the official document. E-mail was extensively used to communicate with the contractor to maintain a trail of what was stated and what had been completed. Mobile broadband cards were provided for all laptops used on the project.

Mobilization Ability

The contractor already had significant resources deployed on a project in close proximity to the MacArthur Maze and could quickly divert resources on an as-needed basis to match requirements on the accelerated project.

Underlying Fundamentals of Success

The official emergency proclamation smoothed the bureaucratic path to success for the accelerated reconstruction. This proclamation allowed the State to grant environmental, public involvement, and building code exemptions.

For the contractor, the value of out-performing the state's expectations on these high-profile projects is enormous, given the obvious benefits of maintaining a strong relationship with Caltrans. In fiscal year 2006 to 2007 alone, Caltrans bid 286 bridge and highway projects totaling more than \$2.3 billion. The owner of the company stated, "It's not about making a huge profit, it's about pride and reputation," and the Chief Engineer for Caltrans affirmed that statement.

Caltrans prequalified experienced contractors. Experience builds the confidence and instills skills in an organization that are necessary to successfully complete accelerated contracts. After the 1994 Northridge earthquake flattened a section of the Santa Monica Freeway in Los Angeles, this same contractor rebuilt the highway in 66 days, 74 days ahead of schedule. That work earned the contractor a \$15.4 million bonus on a \$14.7 million contract. On that project the contractor worked around the clock seven days a week and had some 400 employees in the field.

The I-580 MacArthur Maze project was successfully completed in such a short time duration because of teamwork between Caltrans, the contractor, and the fabricators of the concrete bent cap and steel girders. The teamwork was backed up by a contractor who carefully planned the construction operations and who had the ability to draw together workers and equipment in a timely manner for periods of intensive effort.

The Maze project and the Mojave Bridges project described in the next section were both accomplished using designs prepared by DOT staff engineers. Other successful accelerated projects had designs prepared by consultants. If the critical factors of partnership and consideration of material availability are considered by the designer, it does not seem to matter if the engineering is handled by DOT staff or by consultants

Replacement of the I-40 Bridge, Mojave Desert, California

In early 2006, during routine maintenance bridge inspections, Caltrans discovered severe damage to 12 bridges on I-40, near Essex (see Figure 2.7). Essex is a crossroads some 30 miles west of Needles and 100 miles east of Barstow in the southern end of the Mojave Desert. It was quickly determined that all 12 bridges required immediate replacement.⁴

The potential for a complete Interstate closure of this 130-mile stretch was high if the replacement bridges were not completed quickly. In addition, the effort to build temporary detours would be greatly increased. The cost

⁴*Accelerated Bridge Construction Applications in California- A "Lessons Learned" Report*, August 2008 (Version 1.1), Paul Chung, Raymond W. Wolfe, Tom Ostrom, Susan Hida, editors, Caltrans – Engineering Services, Accelerated Bridge Construction, http://mceer.buffalo.edu/meetings/6nsc/review/ABC_LessonsLearned_v1_1.pdf.

of building temporary detours would exceed \$600,000 per bridge location, or \$3.6 million in total. This would require additional mitigation for ROW and environmental issues. Understanding the urgency, Caltrans sought solutions to accelerate the work.

The design process was expedited in order to secure approval of the project. A design project like this one normally takes a minimum of two to three years to complete before it is ready for advertisement; this design effort took about two and a half months. Design's ability to deliver plans on schedule was a key to project success. The plan made it possible to replace all 12 bridges, from discovery of the problem to completion, in only 14 months. A project of this magnitude would typically require two to three years to complete. Speed was accomplished, in part, due to the commitment to partnering.

Project Description

This stretch of I-40 carries two lanes in each direction, with 15,000 vehicles daily; more than 40% of the traffic is heavy trucks. The majority of the bridges had lost their girder-to-bent and girder-to-abutment load-carrying capacity, and some had lost their deck-bearing capacity. Although the bridges were immediately shored to carry one lane of traffic in each direction, the unpredictability of weather in this desert region causes it to be prone to flash floods with the potential to damage the structures that were shored. If this occurred, it could lead to the loss of the bridges and result in a full closure of I-40. No practical detour route was available to handle trucks if I-40 were fully closed. Therefore, the DOT's goal was to accelerate the delivery of this project in the most timely and cost-effective manner.

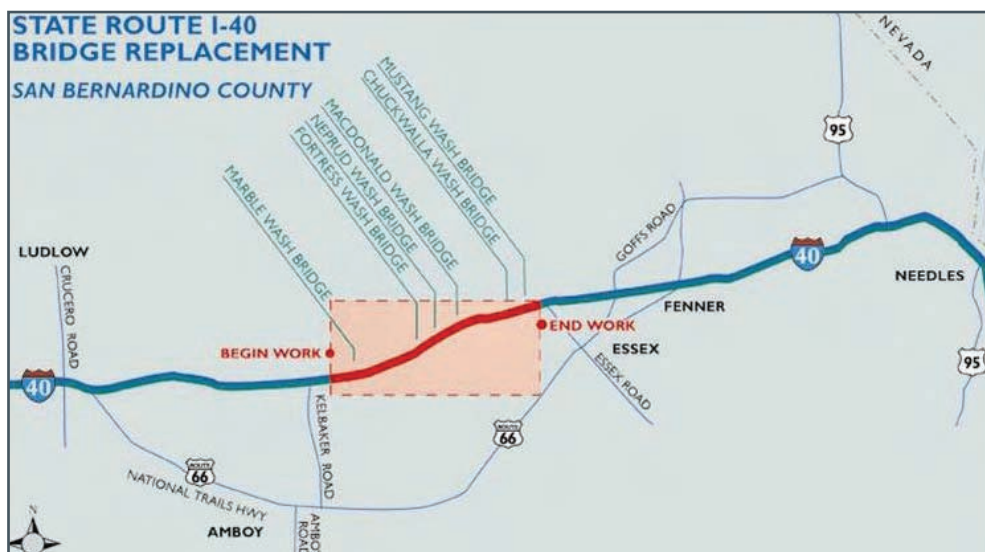


Figure 2.7 Bridge locations in the Mojave Desert

To accommodate concurrent construction activities, precast girders were specified for all 12 structures. Additionally, to expedite cast-in-place deck construction, the girders were designed for the additional dead load of stay-in-place deck forms. Precast deck panels were considered, but rejected due to concerns over girder camber and connection details. At several locations both I- and bulb-tee girders were specified to allow the fabricator to fully utilize yard capacity; however, not all structures could be economically designed with both girder options.

Single-span precast girder structures replaced existing two-span structures at locations where hydraulic freeboard could be maintained with deeper sections. This solution eliminated the need to construct the center bent columns and footings and thus saved construction time. However, the longer span exceeded the capacity of standard I-girders, and bulb-tee sections were required.

To mitigate traffic impacts and expedite on-site construction of the Marble Wash westbound bridge, it was decided to precast as much of the structure as possible. The existing two-span, 106-foot-long Marble Wash Bridge was replaced with a single-span structure designed to reduce substructure construction efforts. Furthermore, site geology permitted the use of spread footings, thereby facilitating a precast abutment solution. The advantage of this strategy was that the abutments could be placed and the girders set soon thereafter. This was the first use of precast abutments for road construction in the state of California.

Project Execution

The heavily traveled route demanded accelerated construction to replace the damaged bridges. The first phase project (there were separate contracts for the east and west bridges) rerouted eastbound traffic to the westbound lanes with two detours: one around the bridge at Marble Wash and the second encompassing the remaining five structures. Since the Marble Wash Bridges were separated by nearly 10 miles from the remaining structures, the two-part detour assisted in alleviating traffic congestion by providing an intermediate passing lane within the project limits. Upon completion of the six structures on the eastbound roadbed, traffic was rerouted off the westbound road in a similar manner, and those six damaged structures were then replaced. The second phase of the work was accelerated at the Marble Wash Bridge to reduce the traffic impacts of the second detour. The projects were awarded based on an A+B bid and included an I/D clause. The westbound bridge contract also had an internal incentive for the completion of Marble Wash Bridge in fewer than 40 calendar days. The contract language for the westbound project is shown in Table 2.8

INCENTIVE AND DISINCENTIVE

Attention is directed to details shown on the plans and to the provisions in “Order of Work,” and “Maintaining Traffic” of these special provisions. Incentive payments and disincentive deductions shall conform to the following:

- I. If all work is completed for the construction of Marble Wash Bridge prior to **40 calendar days**, the Contractor shall receive an incentive payment of **\$25,000 per day** for each and every calendar day prior to the 40 calendar days, to a **maximum dollar amount of \$250,000**.
 - a) The calendar days for completion of Marble Wash Bridge is defined as the first day on which traffic is switched from WB I 40 around the existing Marble Wash Bridge to the day on which traffic returns to WB I 40 over the newly constructed Marble Wash Bridge.
- II. If all work is not completed at Marble Wash Bridge in 40 calendar days, as defined above, a disincentive deduction of \$25,000 per calendar day shall be deducted from any monies due or that may become due to the Contractor under this contract for each and every calendar day’s delay after the 40 calendar days.
- III. If all work is completed and the contract is accepted by the Engineer **prior to the number of working days bid**, the Contractor shall receive an incentive payment of **\$45,000 per calendar day** for each and every calendar day prior to the number of working days bid, to a **maximum dollar amount of \$2,750,000**.
- IV. Partial hours will be counted as one calendar day used by the Contractor for the purpose of calculating incentives and disincentives.

Liquidated damages shall accrue separately and independently of disincentive deductions.

Table 2.8 *I-40 westbound bridge contract I/D language⁵*

Girder fabrication was completed at established off-site yards while concurrent demolition and substructure work commenced in the field. Installation of rock slope protection beneath the structures to protect the abutment footings from scour was the only factor disallowing immediate placement of the girders once the abutments were set.

For the westbound Marble Wash Bridge, the specifications were written to only allow use of its detour when the precast abutments and girders were ready. The detour was then implemented, demolition operations commenced, and the abutment subgrade prepared to receive the precast abutment. Additionally, the specifications limited the duration of the detour at this location, forcing the contractor to shift forces from other operations as necessary to expedite completion of the westbound road crossing the new bridge at Marble Wash.

The precast abutments were fabricated as whole-width pieces in a casting yard in Perris, California, which is approximately 200 miles southwest of Marble Wash. They were 50.14 feet long, 6.53 feet wide, and 5.91 feet high. The heavier of the two weighed approximately 82 tons, requiring transport permits and a larger crane for lifting than might otherwise be found on a similar project of this size. The challenge was to find a large-capacity crane and a hauling truck to accommodate hauling and lifting of these precast abutments. Because of weight limitations, only the abutment's seat and a portion of the footing were precast. The footing shear key, the abutment backwall, and the approach fill-wing walls were cast-in-place components. These latter operations proceeded simultaneously with the cast-in-place concrete deck construction.

A 500-ton crane was used to lift and place the precast abutments (see Figure 2.8). A 360-ton crane could have handled the load considering the crane position relative to the pick and placement of the abutment section, but one was not readily available.



Figure 2.8 *Installation of precast bridge abutment at Marble Wash*

⁵Notice to Contractors and Special Provisions for Construction on State Highway in San Bernardino County from Marble Wash Bridge to Mustang Wash Bridge, District 08, Route 40; December 22, 2006,

www2.dot.ca.gov/hq/esc/oe/project_ads_addenda/08/08-0J1024/pdf/08-0J1024sp.pdf

CHAPTER 2 : EMERGENCY ACCELERATED CONSTRUCTION

Traffic detours using median crossovers and one-lane traffic within the work zones were efficient and safe. Implementation of a speed reduction to 45 mph from 70 mph greatly improved safety through work zones and helped minimize the deterioration of the damaged bridges. The use of the Construction Zone Enhanced Enforcement Program (COZEEP) around-the-clock for these projects helped tremendously in controlling traffic conditions. COZEEP is a statewide interagency agreement (contract) between Caltrans and the California Highway Patrol that enables the DOT to hire highway patrol officers and vehicles to patrol project construction zones. Moreover, the utilization of around-the-clock traffic work crews in monitoring and maintaining traffic devices helped significantly in minimizing traffic interruptions.

The contractor for the projects front loaded the projects with staffing and equipment because they were accelerated. Additionally, due to the isolated work locations, the contractor provided housing for its staff and made sure additional equipment was available for unforeseen conditions. The contractor began the project working seven days a week with extended-shift daytime work. This schedule was later changed to six days a week due to employee fatigue.

The detour at the Marble Wash Bridge was removed after only 28 days. The remaining structures on the westbound roadbed were completed soon after, and the road opened to traffic in only three months. The contractor had bid the time portion of the contract at 165 days. Therefore, by completing all bridges and roadwork in 71 days and the Marble Wash Bridge in 28 versus the contract maximum of 40 days, the contractor earned the full \$3 million incentive. The contractor's dollar bid amount was \$6,645,684 for the six bridges and roadwork, as shown in Table 2.9.

Replace Eastbound Bridges	Cost	Days	A+B
Engineer's estimate	\$10,812,345	180	
High bid	\$9,657,740	160	\$12,297,740
Fourth low bid	\$8,163,830	180	\$11,153,830
Third low bid	\$7,875,734	160	\$10,515,734
Second low bid	\$6,948,787	180	\$9,918,787
Low bid	\$6,567,450		\$9,537,450
Incentive received	\$3,000,000		
Total amount	\$9,567,450		
Replace Westbound Bridges	Cost	Days	A+B
Engineer's estimate	\$8,747,880	180	
Only bidder	\$6,645,680	165	\$11,595,684
Incentive received	\$3,000,000		
Total amount	\$9,645,680		

The same contractor held the previous eastbound contract, which had an engineer's estimate of \$10,812,345. For that contract the contractor bid \$6,567,450 or \$4,244,895 under the engineer's estimate; but for the duration part (B), the contractor bid the full 180 days. The second bidder for that contract also bid the full 180 days.

Synopsis of Acceleration Efforts

Design

The design was completed in three months from the time it was begun until the time the project went to bid. Precast girders were specified for all 12 bridges to accommodate concurrent construction activities. At some sites, single-span precast girders replaced the existing two-span structure. That solution eliminated the need to construct the center bent columns and footings and thus saved construction time. While the contractor thought the precast abutments were a good idea, the comment was made that:

The state needs to develop generic abutment details in which adjustments can be made by field staff. The state was asking the contractor/precaster to build a unique product (skews, abutment seat layouts, etc.) with very little guidance. The contractor had to “teach” the precaster how to build this unique product.

Contractor input during development of the design phase of an accelerated project can provide knowledge about constructability issues that make construction proceed smoother and faster.

Incentive/Disincentive

The incentive provisions of the contract encouraged the contractor to complete the bridges as quickly as possible. The eastbound contract was bid A+B and set a maximum contract time of 180 days with a \$50,000 per day incentive capped at \$3 million. For the westbound contract, again it was bid A+B and had a 180-day maximum duration. However, the incentive was reduced to \$45,000 with a cap of \$2,750,000, but there was an internal incentive for the Marble Wash Bridge. This internal incentive was set at \$25,000 per day with a cap of \$250,000 for completion in fewer than 40 calendar days.

An interesting comment from the contractor about I/D provisions was that:

The I/D needs to be a realistic amount. If the I/D amount is too small, we are not interested. If the I/D is too large, our concern is that it encourages contractors to take “unnecessary” risks that are not good for the agency nor the contractor.

Partnering

Formal partnering was a contract requirement. Through partnering, team players were able to resolve critical issues at the lowest level, such as inspectors and contractor’s foremen, who dealt with details at the job site. Communication among all project team members through effective partnering eliminated potential rework and mistakes. The round-the-clock schedule and remote location posed serious obstacles. However, every team member involved exercised tremendous attention to detail and was unselfish with special efforts to ensure that no interruptions would prevent the project from moving forward.

The contractor for the project stated:

Route 40 was the first time we were able to submit ideas to Caltrans for accelerating a project prior to bid opening. We believe that having a mechanism to submit ideas to Caltrans on a regular basis would be good for both Caltrans and the contracting industry.

Planning

The contractor attributed success to good planning.

Special DOT Support

Electronic submittals were made to the resident engineer rather than to headquarters. This change in procedure reduced review time to five days. A Caltrans biologist did an initial sweep for the desert tortoise and then a temporary tortoise fence was installed. Once the temporary fence was in place, a tortoise monitor was needed only when work was being performed outside the fence area (see Table 2.10).

5-1.20 DESERT TORTOISE PROTECTION

The Contractor shall be informed of the laws, rules, regulations, and conditions regarding the desert tortoise (*Gopherus agassizii*) as specified in these special provisions, and shall conduct all work operations accordingly.

APPLICABLE LAWS

This project is within or near identified desert tortoise range/habitat. The laws applicable to protection of the desert tortoise are the Federal Endangered Species Act of 1973 (16 U.S.C. 1531-1543) 50 CFR Part 402 and 50 CFR Part 17.3, and the California Endangered Species Act, Section 2080 and Section 2081.

PRE-CONSTRUCTION ACTIVITIES

The Contractor shall notify the Engineer at least 10 days prior to any construction activities so that the Department can perform on-site monitoring, if required.

MONITOR/SURVEYOR

The Contractor shall retain, and have available, the services of a qualified or authorized biologist as specified in this special provision for a pre-construction sweep of the project site, on site monitoring, if required, and all tortoise handling that may be required. The Contractor shall submit the name of the biologist to the United States Fish and Wildlife Service, the Department of Fish and Game and the DOT at least 14 days prior to the performance of work activities for approval. The Engineer will forward the request to the Chief of Biological Studies, District 8. Approval of the biologist by the resource agencies and the Department of Transportation is required prior to performing any work.

Table 2.10 *Desert tortoise protection requirement in the I-40 Bridge contracts*

Underlying Fundamentals of Success

Precast elements can successfully accelerate bridge construction. The main challenge is to keep the precast components within a practical weight range for transporting, picking, and placing. A segmented abutment design would reduce or eliminate the need for securing transport permits, lessen the premiums paid for trucking fees, and allow the use of cranes already expected on site for other operations, such as setting girders.

Because the eastbound and westbound traffic were on separate roadbeds, it was possible to redirect traffic off one roadbed at a time to facilitate complete bridge replacement.

There was concern about using precast girders because at the time most fabricators were working at full capacity on other projects, some of which were also very high-profile projects. The DOT met with the industry before finalizing the design to ensure that there was capacity to deliver as needed.

Replacement of the Russian River Bridge, Geyserville, California

The existing steel truss bridge, built in 1932, over the Russian River in Geyserville, Sonoma County, California, was severely damaged during a series of storms in the last two weeks of December 2005. A maintenance crew from Caltrans observed lateral rotation of a mid-channel pier and approximately 8 inches of differential settlement between the upstream and downstream sides. The bridge was closed to traffic on January 1, 2006, causing hardship to the local community because this was the shortest route to the high school on the other side of the river. The bridge closure resulted in a 40-minute detour every school day. Table 2.11 provides a project timeline.

Date	Event
Mid-Dec. 2005	Storms
1 Jan. 2006	Bridge closes; 49-minute detour for school buses
4 Jan. 2006	Governor issues State of Emergency Proclamation
15 Jan. 2006	Caltrans issues \$10.5 million emergency contract to repair bridge
3 Feb. 2006	FEMA declares Sonoma County a disaster area
6 Feb. 2006	Emergency contract amended for removal of existing bridge; Caltrans starts designing replacement bridge
Mid-Mar. 2006	Design complete and bid package ready
11 Apr. 2006	New bridge contract awarded: 80 days for construction
12 Apr. 2006	Contractor submits cost reduction incentive proposal (CRIP) to change superstructure
Early May 2006	CRIP approved; construction starts
17 Aug. 2006	Bridge opens, one week before the school year begins
12 Mar. 2007	Contract completed and accepted

Table 2.11 *Russian River bridge replacement timeline*

Project Description

Caltrans studied the options of repairing or replacing the bridge. After site geology and scour mitigation studies were completed, the department decided to replace and reopen the bridge to traffic before the next school year began. The replacement bridge layout was to have the same overall length, profile, and vertical clearance over the channel as the existing bridge. The decision to match the existing layout was made primarily to minimize the time for acquiring ROW and to keep the number of permits to a minimum. Raising the bridge profile and consequently extending the bridge length would have led to legal issues.

Caltrans' engineers started the design during the first week of February 2006; it was a completely in-house design effort. The replacement bridge was designed to carry two 12-foot-wide traffic lanes, 8-foot-wide shoulders on each side, and a 5.3-foot-wide sidewalk for an overall width of 49.15 feet. Overall length of the

replacement bridge was 980 feet. Hydraulic considerations required the use of fewer spans for the replacement bridge. Eight 102.5-foot-long spans and two 80-foot-long spans at the ends were used. To provide freeboard clearance for the 100-year-flood design, the superstructure depth was limited to 45 inches, a span-to-depth ratio of 0.037 for the longer spans.

Sensitive environmental issues and regulations limited the construction window to four months, May to the end of August. Additionally, falsework was not allowed in the main channel. These restrictions led to the use of a precast, prestressed concrete bridge as the most suitable alternative. Standard precast, prestressed AASHTO box beams 48 inches wide and 39 inches deep, with a 6-inch-thick, cast-in-place reinforced concrete deck were selected.

The precast box beams were to be supported on cast-in-place drop bent caps using two elastomeric bearing pads at each end of each beam. The drop bent caps would have a constant width of 6 feet and a variable depth with a minimum dimension of 6 feet. Each drop bent cap was to be supported by two cast-in-steel-shell pile shafts. The shafts were chosen based on their high load-bearing capacity, the site conditions, and their hydraulic suitability, and were preferred over cast-in-drilled hole pile shafts because of the potential for a cave-in during drilling.

A few aesthetic measures were considered for the bridge bent caps, beams, and barriers. The bent caps were designed with simulated capitals, rounded noses, and arched soffits to visually reduce their otherwise massive appearance. This effort aided in bringing the bent caps and column shafts into a closer proportional relationship to each other. The smooth vertical face of the precast box beams contributed to the tidy effect of the superstructure exterior, thus complementing the nautical theme of the barriers' surface treatment and context-sensitive handrails.

Other issues that affected the preparation of the bid package included the necessity for ROW agreements with four property owners. These were needed for the relocation of existing overhead power and cable lines and to accommodate a natural gas line that was on the existing bridge. A downstream utility easement was obtained and the overhead lines adjacent to the bridge were relocated. The 4-inch natural gas line was placed under the river in this easement by directional drilling. The utility company contractor bored a 1,000-foot-long, 8-inch-diameter hole that reached a depth of 65 feet below the river.

Under the first emergency contract, a trestle was constructed to provide all-weather access for removing the old bridge and for the future construction contract. The use of a trestle was also dictated by the need to minimize environmental impacts. The contractor was required by the permitting agencies to use isolation casings to minimize sound and vibrations from the driving of the 24-in. trestle pipe piles due to the presence of endangered coho salmon and threatened coastal steelhead trout. Hydroacoustic monitoring was also performed during the pile-driving operation. A pile-driving analyzer (PDA) was used for pile quality control.

An emergency contract was executed for the bridge repair. However, when the decision was made to rebuild the bridge, that contract was amended by a Contract Change Order (CCO). Because Caltrans was looking ahead to bid a second contract to construct a replacement bridge, the CCO stated:

*Both the Contractor and the Subcontractor shall coordinate all work necessary to complete the bridge removal work within the time of **25 calendar days**. All costs of overtime hours necessary to complete the demolition work within 25 calendar days from the start date are included in the agreed price of this Contract Change Order. For each day past the allotted 25 calendar days, **the Contractor shall receive \$32,000 less** in total payment for this work. The area between the existing bridge pier 11 and the most easterly abutment shall be completed as the first order of bridge removal work. Any demolition work activities remaining after May 01, 2006, on the east river bank shall be coordinated with the new bridge replacement contractor*

By mid-March, the design package of plans, specifications, and cost estimates was ready for bidding. The contract provided that the state would supply the steel pipe (SP) 1219-mm diameter pipe piles for the bridge. All piles were to be available by June 20. The project was bid A+B as an incentive for the contractor to submit a bid with the least amount of working days (see Table 2.12).

	Cost	Days	A+B
Engineer's estimate*	\$20,080,750	134	
High bid	\$20,451,130	134	\$24,739,130
Fourth low bid	\$14,281,739	77	\$16,745,739
Third low bid	\$13,153,104	100	\$16,353,104
Second low bid	\$11,373,144	105	\$14,733,144
Low bid	\$11,823,026	80	\$14,383,026
* Contract allowed 80 working days to open the bridge plus an additional 225 days for project acceptance.			

Table 2.12 *Russian River bridge bid summary*

This was actually a three-phase contract:

- ❖ Phase 1 – Mobilization, submittal review, and material procurement
- ❖ Phase 2 – Completion of the bridge replacement (This was the time or B portion of the bid, which had a 134-working-day maximum.)
- ❖ Phase 3 – Completion of all other work

The contract was awarded on April 11, 2006, to build the bridge in 80 days.

Project Execution

The very next day after award, the contractor, along with a consultant and a precast fabricator, submitted a CRIP to use a nonstandard, double-tee, precast, prestressed concrete beam with multiple stages of posttensioning in the field. The proposed nonstandard double-tee beam was twice as wide as the original design (8 feet compared to 4 feet). As a result, half as many girders were required per span. The original design had a total of 120 girders; now only 60 girders were needed. A standard double-tee section is typically suitable for 40- to 65-foot span lengths, but was not an option in Caltrans-approved beam sections for such long spans used for the replacement bridge.

The proposed beam design used two-stage posttensioning to maintain continuity of the superstructure under applied loads. Cast-in-place diaphragms between beams and first-stage posttensioning were used to create continuity under the weight of the 6-inch-thick deck slab. Second-stage posttensioning was applied to carry the superimposed dead and live loads. Because the original superstructure depth was maintained in the contractor's proposed design, no changes were made to the substructure design. Not only was the double-tee section nonstandard, but the two-stage posttensioning was not a standard practice for the precast industry in California.

Caltrans immediately evaluated the proposal and approved the concept, primarily to reduce construction time and increase possible cost savings. Closure of the nearest precasting yard and the difficulty of transporting long girders on the local roads made this CRIP necessary. The contractor's consultant submitted superstructure design plans to Caltrans by the end of April for review and approval.

Caltrans engineers performed independent calculations using time-dependent concrete properties to check stresses in the double-tee beams during pretensioning, erection, first posttensioning, deck casting, and second posttensioning construction stages. The independent check included a review of deflections at various construction stages, long-term camber, and superstructure seismic response.

The Caltrans independent check resulted in modifications to the amount and location of the prestressing in the contractor's design. The additional posttensioning of the 980 foot-long continuous double-tee beam frame produced large longitudinal forces that needed to be transferred to the substructure pile shafts. These large service loads acting on the piles were not part of the original design. Caltrans requested that the superstructure-to-bent-cap connection be modified at the two outer bents to allow for longitudinal movement during posttensioning without transferring any displacement to the pile shafts. Metal plates with a greasy surface were used to allow for superstructure sliding with minimal force transfer to the supporting bent caps. After initial shortening of the superstructure and grouting of the posttensioning ducts, the connection was locked in place.

Caltrans engineers cooperated with the contractor's consultant to review and approve the design and detailing of the proposed double-tee beams in two weeks. The accepted CRIP resulted in a saving of \$641,558, shared equally by Caltrans and the contractor.

Construction started in early May with driving the cast-in-steel-shell pile shafts and building the drop bent caps. Pile load testing was conducted at two different bent locations to determine actual in-situ soil resistance. No reduction in driving length was gained from the results of the load tests.

In the meantime, new beam formwork was built and the double-tee beams were fabricated and transported to the site in May and June. Erection of the beams was completed in July. The cast-in-place diaphragms and intermediate diaphragms were cast in early August, followed by the first-stage posttensioning operation. The deck was cast and the second-stage posttensioning took place three days later. Work around the clock resulted in the bridge opening to traffic on August 17, 2006, one week before the school year began, to the delight of the local community.

Synopsis of Acceleration Efforts

Design

The original design sought to address three issues:

- ❖ The sensitive environmental condition of the work site
- ❖ A construction window limited to four months
- ❖ The prohibition against using falsework in the main channel

These requirements led to the design of a precast, prestressed concrete bridge. The contractor took the process one step further and considered the transportation cost of delivering the girders and the impact of girder erection time. The contractor's double-tee design (see Figure 2.9) required 60 girders versus the 120 in the original design. Additionally, the wider double-tees eliminated the deck falsework. Here



Figure 2.9 *Installation of double-tee precast girders*

again, like at the I-40 Mojave Bridges, is the finding that contractor involvement in project design can have a significant benefit in realizing the goal of speedier construction.

Contract

A+B bidding was used to emphasize the importance of construction time. The contract was also structured in phases so that all preparatory work (Phase 1) could be completed before construction and the time portion commenced.

Partnering

Working closely with the all impacted parties (i.e., utilities, property owners, and environmental agencies) and the contractor minimized the project construction time. Caltrans learned that, with effort, its CRIP approval process could be accelerated successfully.

Planning

Caltrans's decision to execute a change order to the original repair contract and have that contractor construct a trestle instead of performing the repair work gave the second contractor immediate access to the site.

Material Supplies

Concern for potential delays because of the non-availability of the steel piles in a timely manner led to the decision for the DOT to furnish the material to the contractor. This is typically considered unwise, as most contractors are adept in securing materials as inexpensively as possible; however, Caltrans eliminated a major project risk by taking this action.

Interagency Agreement

Caltrans drew on its agreement with the Highway Patrol for assistance with transporting the oversize double-tees to the project.

Prior to being faced with an emergency acceleration situation, agencies should have such agreements established with all authorities that could impact the movement of materials or structural elements to a project.

Underlying Fundamentals of Success

What had been a three-minute drive from fire department headquarters on the west side of the Russian River to the east side became a 25-minute detour when the bridge was closed. With the bridge out, the department spent \$32,000 a month to staff a station on the east side. The school district spent an additional \$10,000 a month on fuel for its buses. Therefore, everyone in the community understood the importance of accelerating construction of the replacement bridge.

Caltrans developed its design considering speed of construction and availability of materials. But when the contractor suggested a modification, the DOT was very open to the suggestion and provided a speedy review that quickly led to an acceptable solution that cut more time out of the critical phase of delivering the bridge to the community.

Repair of the I-5 Tunnel, Los Angeles, California

A 31-vehicle accident shortly before 11 p.m. on Friday, October 12, 2007, resulted in a blazing inferno in an I-5 bridge (tunnel) superstructure (see Figure 2.10) north of Los Angeles. The fire caused significant damage to the 1,000-foot-long tunnel and the closure of I-5. A subcontractor who worked on the rehabilitation project stated, “There were truck tires, batteries, seats ... melted to ash. It was emotional for me to look at it when I saw it the first time. The heat was so intense, concrete had spilled off the walls and concrete on the ground had exploded 6 inches deep.”

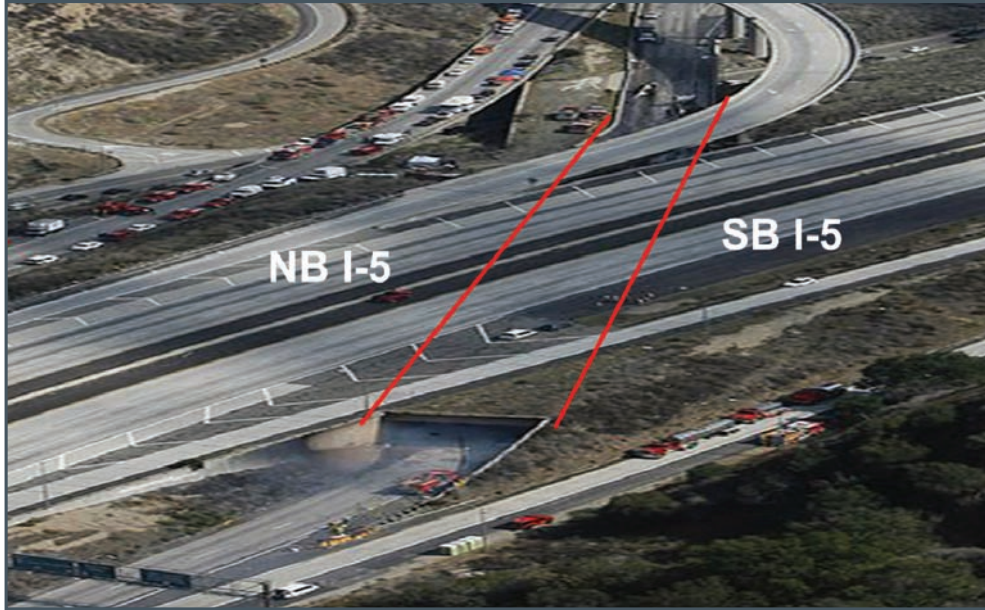


Figure 2.10 Location of I-5 tunnel, Los Angeles, California

Project Description

The I-5 tunnel is a truck bypass that runs beneath eight lanes of I-5, the major West Coast interstate linking Mexico to Canada. Caltrans maintenance personnel and emergency response agencies diverted the truck traffic onto the roadway above. The diversion caused heavy traffic congestion at this vital link between the Central Valley and Southern California. Thus, it was obvious that extensive work would be needed to repair the tunnel, and it would have to be accomplished quickly. The governor immediately declared a state of emergency. However, due to debris and potential toxic conditions, Caltrans and the consulting engineer could not enter the tunnel until three days after the accident (October 15). The consulting engineers were from the same firm that supported Caltrans after the I-580 MacArthur Maze fire only five months before.

All agreed that the pavement would have to be completely replaced and the walls repaired; in some places the walls sustained damage a few inches deep. Parts of the ceiling could be retained or repaired; others needed replacement. “A lot of the damage came because as the concrete heated and the fire crews sprayed water in, it caused the concrete to spall.” Twenty-four inches of fire-damaged concrete pavement and sub-base material had to be removed.

Caltrans was looking for a maintenance-free surface that could be easily cleaned, would enhance visibility for safety, and would reduce the energy requirements for lighting. Paint was considered, but it has a limited life and degrades over time, particularly when washed with high-pressure water blasting. Concrete made with white

cement, however, would be expected to last the entire life of the tunnel and would have the added benefit of enhancing the lighting in the tunnel.

White cement concrete is brighter because it possesses a higher albedo rating. The standard unit of measurement for pavement reflectivity is albedo (ASTM C1549), which is a simple ratio of the amount of light reflected from a material to the amount of light projected on the material. The higher the albedo number, the more light is reflected from the surface. A typical asphalt surface can range from 0.04 to 0.12. Concrete pavements can range from 0.2 to 0.5 or higher. The albedo rating of white cement concrete is 0.7 to 0.8 – it reflects double the light of gray concrete.

Caltrans began the contracting process almost immediately. The engineering evaluation was completed around October 19, and on October 27 Caltrans hosted a bidder walk-through, accepting a handful of bids and solidifying the project strategy. A 33-day contract was awarded on October 29. The work was complicated by the confined quarters and the fact that to stay on schedule a high number of personnel were employed at all times.⁶ The repair contract, which was let using an A+B-type contract, was for \$11 million and included an I/D clause. The incentive for early completion was capped at \$2.9 million; the disincentive was \$150,000 plus liquidated damages for each day beyond the stated duration. Table 2.13 shows the I-5 tunnel project timeline.

Date	Event	Day	Const. Day
12 Oct. 2007	Wreck and fire; I 5 NB and SB lanes closed	1	
15 Oct. 2007	Crews inspect damage to tunnel	4	
27 Oct. 2007	Walk through and bid	16	
29 Oct. 2007	33-day contract awarded	18	
30 Oct. 2007	First workday (demolition)	19	1
6 Nov. 2007	Shotcrete completed	26	8
7 Nov. 2007	Girders set	27	9
9 Nov. 2007	Concrete paving	29	11
15 Nov. 2007	Tunnel opens	35	17

Table 2.13 *I-5 tunnel repair timeline*

Project Execution

The work included replacing portions of the fire-damaged bridge superstructure with precast concrete girders (see Figure 2.11, left), repairing portions of the fire-damaged retaining walls and abutment walls, and replacing the fire-damaged pavement (see Figure 2.11, right) with rapid-set concrete. Acceleration techniques used on this project included precast concrete girders and rapid-set concrete for the pavement. There was a full closure of the southbound truck lanes during the work.

⁶Prokopy, Jenni, “White light,” *Roads & Bridges*, January 2008, Vol. 46 No. 1, www.roadbridges.com/White-light-article8881.



Figure 2.11 *Setting girders and paving on the I-5 tunnel project*

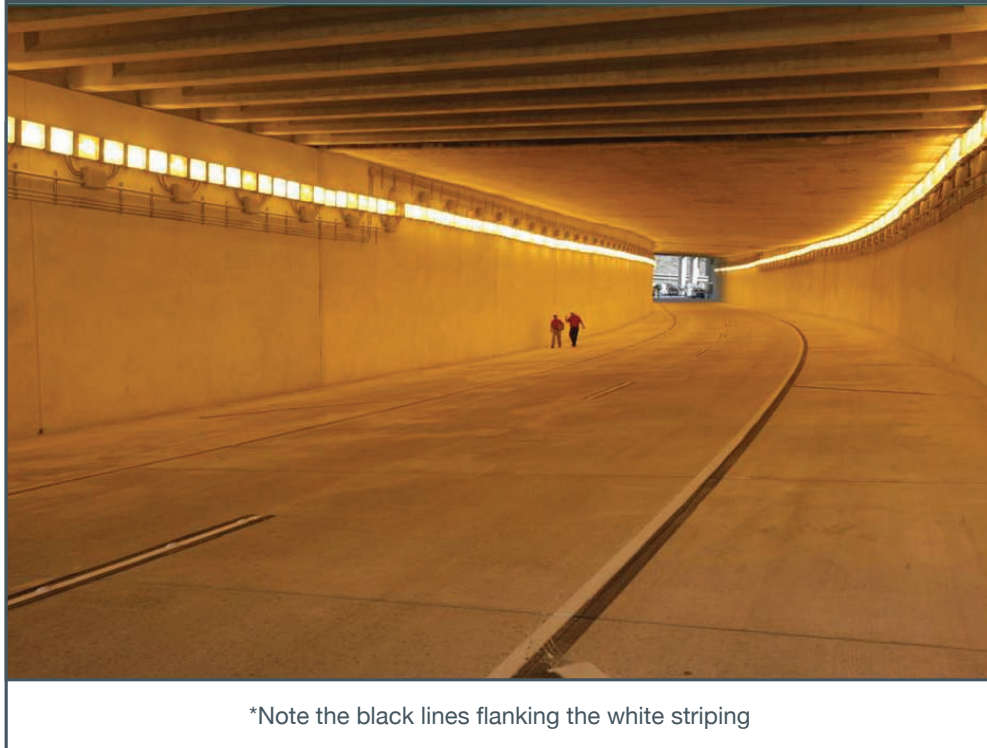
Twenty hours of demolition was the first item of work. Demolition involved chipping back the walls and water blasting to remove the damaged concrete. The crews had to chip out the worst areas by hand. The depth of wall concrete removal ranged from 3 to 4 inches (the walls are 18 to 22 inches thick). The first 90 feet of the tunnel (nearest the site of the accident) was entirely rebuilt. While the demolition was proceeding, the mix designs for the paving were finalized.

Shotcrete work to repair the walls followed the demolition and wall preparation. The first layer in the heavily damaged areas was a 4,000-psi ready-mixed concrete designed to replace all the damaged concrete. A specialty bagged, high-strength, noncorrosive material was used to patch areas with deep damage. Following the repair work, the entire tunnel area (27,000 square feet) received a refractory shotcrete lining. This was a specialty mix incorporating white cement for reflectivity and durability. Procuring the necessary raw materials did require a significant effort. The mix included a blend of 50% ground granulated blast furnace slag, 50% white cement, and silica sand. It was not the easiest component to find in Southern California because of its use in stucco buildings. The walls received a troweled finish.

The pavement concrete mix was also unique. In addition to color specifications, Caltrans had stringent strength requirements for the pavement. Typically, the specification is for 550-psi flexural strength in 10 days; for this project, the DOT specified 550 psi in 24 hours. There was also a flexural strength requirement of 650 psi in seven days.

The mix contained Type I white cement plus five admixtures, one mineral and four chemicals. Metakaolin, the mineral admixture, is white and is typically included to improve the durability of concrete. A super-plasticizer was used to provide workability and reduce the water-to-cement ratio. A large quantity of hardening accelerator helped provide high early strength. A shrinkage-reducing admixture limited drying shrinkage, and a hydration stabilizer was used to provide sufficient time for the mix to remain workable.

The original goal was to use high-grade white aggregates from another area of the state, but the team chose local aggregates instead, so the final concrete mix is not pure white. The compromise of using local aggregates that were not pure white still provides good reflectivity. The concrete is extremely light; in fact, it was necessary to paint black stripes on either side of the white stripes to make them stand out (see Figure 2.12).



*Note the black lines flanking the white striping

Figure 2.12 *Finished I-5 tunnel**

The low clearance in the tunnel limited equipment options for handling the concrete. A Texas screed was used to place the first 8-inch lift of lean concrete. Because the concrete was extremely fast-setting, the contractor had 15 to 20 workers finishing the pavement behind the screed, hand-floating it with a rough finish. The final layer of concrete across the four 12-foot lanes was placed with a Whiteman roller screed. The time for finishing was again minimal, so a crew of six followed the roller screed for finishing. A final pass of profile grinding on the surface took an additional 15 hours.

Synopsis of Acceleration Efforts

Contract

A+B bidding was used effectively with an I/D to emphasize the importance of time.

Design

Readily available precast concrete girders were used.

Partnering (Teamwork)

The contractor commended Caltrans, saying that it was a full team player, with staff available 24/7. “Everybody in the whole Caltrans group was really awesome.”

Underlying Fundamentals of Success

Caltrans developed its design considering speed of construction and availability of materials. When it was not possible to obtain the white aggregate, the DOT was open to modifying the requirement so that the highway would be back in service in the shortest time possible.

The I/D provisions of the contract encouraged the contractor to complete the tunnel as quickly as possible.

Repair of the I-10 Bridge over Escambia Bay, Pensacola, Florida

Hurricane Ivan (see Figure 2.13) made landfall at Pensacola, Florida, during the night of September 15/16, 2004, and destroyed the 2.5-mile long I-10 bridges over the shallow Escambia Bay (see Figure 2.14). On September 16, before the actual extent of the damage was known (see Figure 2.15), the Florida Department of Transportation (FDOT) asked four contractors to bid on a 14-day Phase I repair of the westbound bridge and a 90-day Phase II repair of the eastbound bridge.

Project Description

The contractors had to immediately assemble their teams, including engineers to provide design support. FDOT conducted a project scoping meeting on September 17 and accepted DB proposals that same day (see Table 2.14 for the FDOT timeline). However, as discussions continued, the receding waters revealed substantially more substructure damage than was originally anticipated. The superstructure had moved laterally, at an angle to the bridge, twisting and dragging down piers (see Figure 2.16).

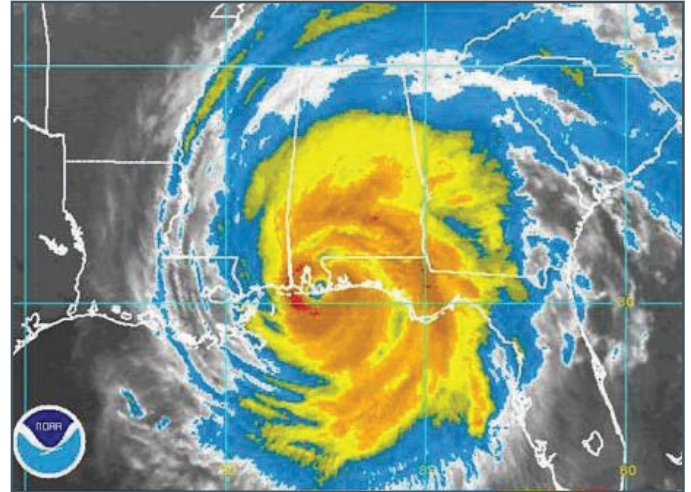


Figure 2.13 Hurricane Ivan

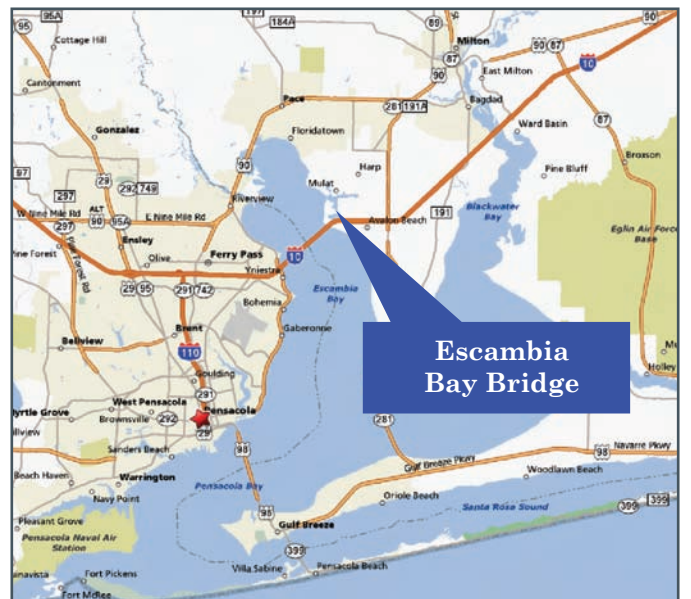


Figure 2.14 Location of the Escambia Bay Bridge



Figure 2.15 Escambia Bay Bridge missing decks after Hurricane Ivan

Date	Event
15/16 Sept. 2004	Hurricane Ivan makes landfall
17 Sept. 2004	9 a.m.: Pre-proposal meeting in Chipley, Florida 1 p.m.: Question-and-answer meeting 4 p.m.: Price proposals Before midnight: contract signed
19 Sept. 2004	Heavy equipment begins to arrive
22 Sept. 2004	Welding begins on pipe piles
28 Sept. 2004	600-ton crane arrives
4 Oct. 2004	11:30 p.m.: Crane sets last span in position
5 Oct. 2004	6 a.m.: Two-way traffic restored on westbound bridge
20 Nov. 2004	Eastbound bridge opens to traffic
16 Dec. 2004	Contract completed

Table 2.14 *I-10 Escambia Bay Bridge timeline*



Figure 2.16 *I-10 Escambia Bay Bridge's damaged piers after Hurricane Ivan*

FDOT later changed the time duration for repairing the eastbound bridge to 24 days. Additionally, to accelerate the project, FDOT's top management approved a \$250,000/day incentive/disincentive with a cap of \$3 million for Phase I. The Phase II deadline was set at 90 days with a \$50,000/day incentive/disincentive.

The contractors submitted prices on Friday, September 17, at 9:30 p.m. FDOT then conducted negotiations with the selected contractor throughout Friday evening. Discussions centered on approaches to the work and contingencies. At one point everybody had to take a break and go for a walk; however, by midnight, FDOT and the contractor struck a deal, with both parties signing the emergency contract.⁷ This was a day and a half after the storm destroyed the bridge.

⁷Talbot, Jim (2005). "Repairing Florida's Escambia Bay Bridge," *Dixie Contractor*, 21 March.

The first six pages of the Natural Disaster Emergency Contract were typed. After that there were seven pages of hand-written Assumptions and Clarifications to the typed document (Appendix G). There were two phases to the work:

- ❖ **Phase I** – The westbound bridge had a contract time of 24 days. The contractor completed this phase in 17 days. The westbound had a total of 229 spans, of these 12 were destroyed and 19 misaligned.
- ❖ **Phase II** – The eastbound bridge had a contract time of 90 days and was completed in 63 days. Of its 229 spans, 51 were destroyed and 33 misaligned.

FDOT provided the contractor Acrow bridge components for connecting 58 spans. The Acrow prefabricated steel bridge system is the third generation of improvements to the renowned Bailey bridge⁸.

Project Execution

One of the JV contractors mobilized its 600-ton floating crane, which had been scheduled for work with the Louisiana Department of Transportation and Development (LADOTD). LADOTD postponed its contract to help with Florida's recovery efforts. This crane, one of a very limited number in the United States, can pick up a 300-plus-ton load 100 feet away from its center pivot. To expedite the delivery of necessary materials, neighboring states granted permits for oversize widths and loads for piling and other supplies. From a sister company the JV mobilized 40 welders who were then working on offshore platforms. The contractor also identified and purchased 36-inch steel roll beams from a disassembled bridge in Tennessee, secured the mill certifications for the beams from the Tennessee Department of Transportation, and shipped them to the project site for use in the Phase I bridge substructures.

During Phase I everyone worked seven days a week. FDOT, the contractor's engineer, and part of the contractor team all co-located in the engineer's Tallahassee office. To expedite approval of engineering calculations and drawings, FDOT committed to a four-hour turnaround 24/7 until traffic was moving on the completed Phase I Bridge. The contractor, together with its engineer, had to design new pile bents for repairing both the westbound (Phase I) and eastbound (Phase II) bridges as well as a support system for the Acrow Bridge sections.

All designs had to conform to the available materials.

The contractor organized four teams to move the project forward:

1. **Mobilization** team – to put the camp infrastructure in place
2. **Construction mobilization** team – to assemble the necessary equipment
3. **Operations** team – to attack the work (i.e., schedule, work plans, safety, and crews)
4. **Design** team – to accelerate the engineering

⁸“Historical Background of Steel Bridges,” *Prefabricated Steel Bridge Systems: Final Report*, (Web Doc) Federal Highway Administration, 12 May 2008, www.fhwa.dot.gov/bridge/prefab/psbsreport03.cfm.

There was no electrical power except what the contractor provided, there were no living facilities for the workforce, and there were no eating establishments remaining in the area. Consequently, the contractor had to provide the work force with living facilities and arrange for food service; it was basically a “camp job.” In the early stages, the contractor used helicopters to bring supplies to the project site.

When construction began, the job was isolated and everyone struggled with communications; however, all parties knew that they had to work together to rapidly open the bridge. A system of runners was established to carry information between the project and the engineering office in Tallahassee. Within a week, a camp of trailers was established on the east approach to the bridge. To address critical needs, the contractor robbed staff and labor from other projects (e.g., welders were brought from Texas to fabricate the piles and bent caps).

Because during Phase I the crews had to work around debris, the design allowed pile location adjustment to avoid the wreckage. Piling material was a critical item at the beginning of the work because the contractor had only located about one-third of the estimated total requirement. The remaining piles had to come from the mills and, therefore, the rolling schedule at the mills soon became critical to the acceleration effort. Outside construction, engineering, and inspection (CEI) professionals did quality assurance on fabrication welding. The state did quality assurance on construction, but to a lesser extent. FDOT used a dynamic PDA for pile testing/acceptance. The DOT did not test the steel, but the contractor submitted certifications. Because this was temporary construction, there was no “buy America” requirement.

The Phase I work involved using good eastbound bridge spans to reconstruct the westbound bridge. Bringing marine equipment from other projects along the Gulf Coast and on the Mississippi River, the contractor used barge-mounted hydraulic platform transporters to lift the eastbound bridge spans off their bents. The barges were then maneuvered so that a ringer crane (see Figure 2.17) could pick and place the slab onto the westbound bridge bents. “On day 17, October 4, the crane set the remaining seven spans into place. The last span was in position at 11:30 p.m., seven days ahead of the bonus/penalty deadline. This qualified the contractor for a \$1.75-million bonus. By 6:00 the next morning, one lane of traffic started rolling across the repaired section of the bridge in both directions.”⁹

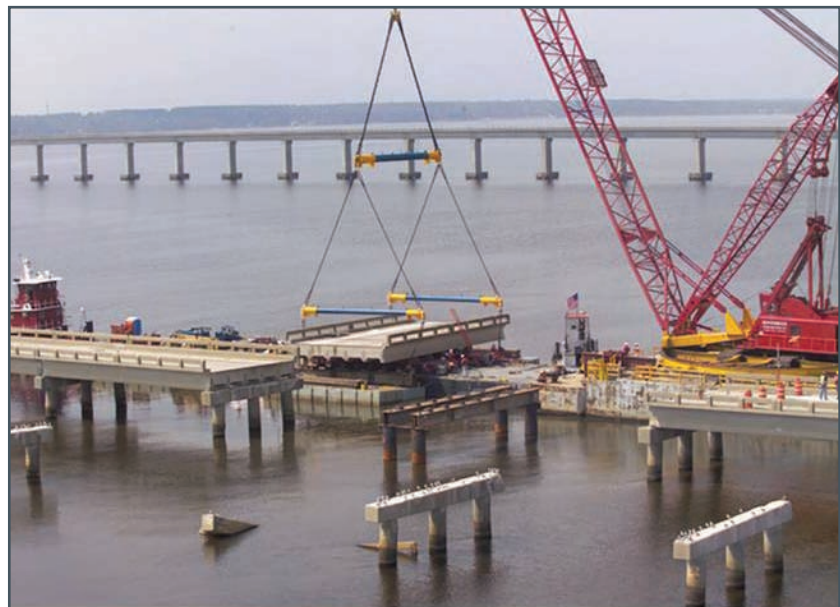


Figure 2.17 *Lifting an Escambia Bay Bridge deck section with a ringer crane*

⁹Talbot, Jim, “Repairing Florida’s Escambia Bay Bridge,” *Dixie Contractor*, 21 March 2005, www.acppubs.com/article/CA511040.html.

Synopsis of Acceleration Efforts

Contract Award and Execution Delegated to Local FDOT Office

This fast-tracked the selection process and contract signing so that the contractor could begin moving people, assembling equipment, and securing materials quickly.

Basic Scope Only

FDOT let the contractors propose and then made a best-value decision. Contractors were given latitude about means and methods for these projects.

Need to Execute a Contract

The contractor would not assume liability for entering the ROW or for beginning to order materials until a contract had been executed.

Mobilization Ability

Only a large contractor in terms of labor, equipment, and financial resources can respond quickly to a project of this magnitude during an emergency.

Right Team

The urgency of the situation and isolation of the site required decision makers to be on site and readily available.

Work Concurrent with Design

The design had to utilize material that could be found and moved quickly to the project site. The work was considered temporary construction. The designers were conservative when considering pile lengths to avoid problems.

Change Is Inevitable

The contractor immediately began an inventory of materials that were available and then communicated this to the designer. The designer was then able to communicate back in terms of flexibility in design based on those materials.

Scope Will Change

As the work progressed, there was better knowledge of the damage situation and the scope was changed accordingly.

Availability of Materials

The contractor had a yard in Texas from which it was possible to draw the necessary materials for the early phase of the work. This existing available supply of material was augmented by the contractor's ability to call on historical relationships with suppliers across the country to obtain other materials. These past relationships had established trust, making it possible to work with only a phone call.

Daily Meeting

The contractor prepared daily look-ahead schedules to ensure that there would be no "gotcha's." Due to hurricane-caused communication outages, daily meetings were the only effective way to communicate. Decisions on whether to salvage or replace existing elements of the damaged bridge were made during the daily meetings.

Underlying Fundamentals of Success

On September 10, 2004, the governor of Florida issued an Executive Order declaring an emergency. This order, which was issued before Hurricane Ivan made landfall, was the instrument that permitted FDOT to use its Natural Disaster Emergency Contracting procedures in response to the damage caused by Ivan.

Issuing the order before the hurricane actually struck allowed the DOT to respond immediately to the challenge of reopening the Escambia Bay Bridge.

In less than 48 hours after the I-10 bridge was severely damaged, a DB contract had been executed. Only 19 days after the hurricane, a temporary bridge was reopened to traffic.

The keys to success in the case of this emergency repair effort were:

- ❖ **Expedited contract execution** – FDOT delegated award to the local office; work was scoped for basic requirements of the needed facility. Obtain an agreement quickly, handwritten if necessary; the formal contract can follow later.
- ❖ **Mobilization** – Marshal people and equipment to the project site as soon as possible. Select a contractor that has the ability to bring people and equipment to an isolated location quickly.
- ❖ **Design team in place to support the project** – Relocate experts to the site and in position to make quick decisions. Develop the design concurrent with the work.
- ❖ **Flexibility based on material availability** – Speed can only be achieved if the DOT is willing to accept available materials for repair.

An important point made by the contractor about how emergency contracts, such as this one, are approached was that its comfort with the DOT affects how it prices the risk of performing the work. It was also noted that large contractors that have the resources to support these projects prefer DB approaches for emergency construction.

Replacement of the Queen Isabella Causeway to South Padre Island, Texas

At 1:59 a.m. on September 15, 2001, a tug pushing four loaded barges heading north veered from the Gulf Intercoastal Water Way channel and collided with bent 32 of the Queen Isabella Causeway. The loss of the bent toppled two 80 foot sections of the bridge. The tug/barge tow came to rest against the causeway, also damaging bent 26. The damage to the adjacent bent foundations resulted in the collapse of span 30 later the same day. As part of this collapse, bent 31 fell over and onto bent 32 (see Figure 2.18). Nine vehicles plunged into the water, resulting in eight deaths. The sequence of events, starting with the collision, is shown in Table 2.15.



Figure 2.18 *Damaged Structure after bent 31 fell on bent 32*

Date	Event
15 Sept. 2001	1:59 a.m.: Tug pushing barge hits bent 32 Tug/barge comes to rest, damaging bent 26 Afternoon: Span 30 collapses Bent 31 falls onto bent 32 due to span 30 collapse Pedestrian ferry operation starts Corpus Christi District requested to provide vehicular ferry Docking facilities contracted via negotiated bid Damage inspection starts Conceptual design starts
16 Sept. 2001	Construction begins on temporary landing for ferry
17 Sept. 2001	First vehicular ferry arrives
21 Sept. 2001	Design completed (plans, specifications, and estimate [PS&E] package ready) Contract awarded for demolition/reconstruction
22 Sept. 2001	Demolition starts and continues throughout construction
7 Oct. 2001	Field construction starts
21 Nov. 2001	Contract completed and accepted
22 Nov. 2001	Bridge reopens (32 days ahead of schedule)

Table 2.15 *Queen Isabella Causeway replacement timeline*

Project Description

The Queen Isabella Causeway is the only vehicular access to South Padre Island. It connects Port Isabel to the Island. The causeway was built in 1974 and is approximately 2.4 miles long. It carries two lanes of divided traffic in each direction. The average daily traffic (ADT) at the time of the accident was 21,000 vehicles.

Night fishermen were the first to arrive at the bridge collapse and were able to save three individuals. Local emergency/rescue agencies also responded quickly, as did the United States Coast Guard, Department of Public Safety (DPS), Texas Parks and Wildlife Department, and TxDOT. The Coast Guard and DPS served as lead agencies since the incident involved both vehicles and vessels. DPS set up a command center at the site.

The first major decision was related to determining if a temporary structure could be constructed quickly to span the collapsed section. Once this approach was ruled out, attention was turned to private boats and vehicular ferries to provide temporary transportation from the island to Port Isabel. TxDOT established and maintained both pedestrian and vehicular ferry operations, and local entities provided parking and staging areas with shuttle transportation.

Pedestrian ferry operations began September 15 (see Table 2.15) with four boats hired via a negotiated bid emergency purchase of services; (see Table 2.15). This contract was for two weeks. Subsequent to this service contract, a low-bid emergency purchase of services resulted in six boats (see Figure 2.19) being hired from three different firms for the duration of construction (see Figure 2.19). Later, in order to increase pedestrian traffic flow, an emergency maintenance contract was executed with another company to provide more vessels to carry an additional 200 to 400 passengers per hour.

Providing vehicle ferry operations was the next hurdle for TxDOT to overcome. TxDOT immediately requested its districts to provide support for a temporary ferry operation. The Corpus Christi District agreed to help locate and construct temporary ferry landings. On September 16, construction with TxDOT forces began on the first temporary landing on the island side. At the same time, the existing Port Isabel Navigation Dock was retrofitted by TxDOT forces to serve as the Port Isabel landing. Ferry operations started September 19 using a TxDOT-owned ferry. A second TxDOT ferry arrived and began operating September 22. Additional ferry capacity was added through an emergency maintenance contract, which brought a commercial vehicular ferry into the operation (see Figure 2.20). Finally, at the request of the local school district, TxDOT approved a separate ferry system to transport schoolchildren.

TxDOT had to acquire an Army Corps of Engineers permit for construction of both temporary ferry landings. TxDOT personnel surveyed and identified protected sea grasses in the area and located the landings to avoid them. Demolition of the damaged structure commenced once the temporary vehicular and pedestrian ferry systems were in place.



Figure 2.19 *Temporary pedestrian ferry*



Figure 2.20 *Temporary vehicular ferry*

Project Execution

With temporary transportation to and from the Island addressed, the next major concern was re-opening of the Gulf Intercoastal Water Way to barge traffic. The adjacent spans and supporting foundations of the steel unit that crossed it were inspected (see Table 2.15). Based on these inspections, barge traffic was allowed to resume with certain restrictions. Barges were only permitted to operate during daylight hours and were not allowed to pass through during adjacent span/bent demolition.

TxDOT district and Bridge Division personnel began damage assessment immediately. The Bridge Division had a diving team perform all underwater inspections. Due to the extent of the piling damage on adjacent bents 30 and 33, it was decided to replace these bents, as well as spans 29 and 33. Bent 26 was damaged by the tug/barge tow and would require only repair. With the damage assessment underway, conceptual design commenced. As shown in Table 2.15, the intent was to complete a PS&E package by September 21, 2001.

Due to the considerable unknowns related to the demolition effort, this emergency work was performed under a force account contract executed with a local contractor on September 21. The contract had an initial limit of \$1 million and a termination date of January 31, 2002. An emergency bridge demolition/reconstruction permit was obtained from the ACOE, and demolition started September 22, 2001, with the contractor clearing debris so that remaining vehicles could be removed. The demolition work, which

continued throughout construction operations, was only slightly ahead of construction (see Table 2.15). Some debris was too heavy to lift using the contractor's equipment, so explosives were used to break it up into reasonably sized pieces (see Figure 2.21). This effort had to be coordinated with several agencies.

A turtle survey was required to ensure that the endangered Kemp's Ridley sea turtle was not harmed. This survey was completed prior to and during the blasting.

Once it was determined that a temporary crossing was not feasible, conceptual design began and was performed concurrent with the detailed damage assessment. It was quickly determined that matching the original structure would be the fastest and most economical means of reconstructing the bridge. This decision was based on input from district and division personnel, potential suppliers, and contractors. There were six exceptions:

- ❖ Use Type IV beams instead of Type 54 (The fabricator was already set up for this, plus the beams were more stable and did not require diaphragms.)
- ❖ Support the water line with hangers from the deck as opposed to concrete diaphragms (to save time)
- ❖ Use the original-size bearing pads (1½-inch versus 2½-inch pads)
- ❖ Rotate the footings 45 degrees to avoid existing piling
- ❖ Add one additional pile to each footing to ensure adequate foundation support and reduce the possibility of time-consuming build-ups
- ❖ Cast the footings one foot higher than existing to limit the potential for construction delays due to adverse tide or weather conditions

The Bridge Division provided details for the replacement of spans 29 through 33 and bents 30 through 33. At the same time, the PS&E package was assembled and executed. After the damage had been assessed, the Bridge Division provided design details for the repair of Bent 26. The design included new drilled shaft foundations (concern with pile driving next to damaged column), new footing on top of the existing one, replacement of a section of the tie beam, crack injection, and column encasement. Struts were also designed to help stabilize the column during construction; they were attached to adjacent footing and the new drilled shaft casing.



Figure 2.21 *Demolition with blasting*

Bridge reconstruction commenced on October 7, 2001, after a lump sum emergency contract was negotiated and executed on September 21, 2001. The contract duration was set at 87 calendar days. The contract also included a \$10,000-per-day incentive and disincentive, capped at \$200,000. Three change orders were executed, including an increase in the incentive amount beyond the 20-day maximum to add another seven days at \$75,000 per day (cost of ferry and other services exceeded this value). The first change order also added the repair of bent 26 to the contractor's scope of work.

The contractor had the necessary resources in the area to support this short-duration schedule. For example, the contractor was in the marine business and was already hauling sand and gravel and could easily supply marine equipment to the project. TxDOT had considerable experience working with this contractor. The contractor worked an around-the-clock schedule.

Construction was expedited by using high-range water reducers for the substructure concrete. A work plan was developed for their use, and trial batches were used to establish slump versus time graphs and desired dosages of the high-range water reducers. The initial slump was approximately 1/2 inch with concrete dosed to achieve an 8-inch slump. Final mix/dosage was developed to provide 3,000 psi compressive strength at 16 to 20 hours. This treatment allowed for early removal of the forms to continue with rapid form placement and construction.

Reconstruction and demolition continued concurrently, with the same contractor being responsible for both efforts. TxDOT worked closely with the contractor through the construction period. Construction was completed in 56 days, 32 days ahead of the fixed duration, and the contractor earned a bonus of \$725,000. Parts of the construction process are shown in Figure 2.22 and Figure 2.23. The total cost of the project is summarized in Table 2.16.



Figure 2.22 *New footing construction at bent 30*



Figure 2.23 *Last three spans poured on November 15*

Approximate Cost	Cost
Bridge demolition	\$1,883,529
Bridge reconstruction	4,766,666
Temporary transportation	4,815,908
Other district (mostly temporary transportation)	3,308,896
Local entity reimbursement (temporary transportation)	1,184,378
Total estimated cost	\$15,959,377

Table 2.16 *Queen Isabella causeway bid summary*

The contract allowed 87 calendar days to open the bridge.

Synopsis of Acceleration Efforts

Team Commitment

TxDOT, the fabricator, and the contractor were committed to the project based on a 24/7 schedule.

Design-Build Decisions

Decisions were made based on input from all parties as if the project were DB, although project delivery was DBB.

Timely Decision Making

Problems were addressed immediately because project team members were on call throughout the day over the duration of the project.

Incentives

Monetary incentives motivated the contractor to complete the project early.

Concurrent Construction Sequence

Demolition started as soon as the damage assessment was complete and continued during construction. This overlap reduced the overall construction duration.

Mobilization Ability

The contractor responded quickly to the need and had the necessary resources (i.e., equipment and people) in the area to staff the project and sustain a highly accelerated schedule.

Total Closure

Both pedestrian and vehicular traffic were handled using temporary ferries, eliminating the need for a temporary structure and providing an unobstructed working area.

Accelerated Materials

Use of high-range water reducers in the substructure expedited form removal and allowed construction to continue at an accelerated pace.

Underlying Fundamentals of Success

The decision to use a temporary ferry system to move pedestrians and vehicles to and from the island allowed TxDOT to move forward with demolition of the existing damaged structures in a timely fashion. The use of the same structure design as the existing structure, with some changes, facilitated rapid design. In turn, this allowed TxDOT to contract for construction within weeks of the accident. A team approach with common goals promoted a successful work environment where decisions were made in a timely manner based on input from all the participants in the design and construction process. The contractor was very organized and efficient in planning and executing the work with the needed resources available to accelerate demolition and construction.

Conclusions: Emergency Accelerated Construction

As demonstrated by the projects investigated during this scan, the ability to successfully execute an accelerated project under emergency conditions depends the following:

- ❖ Have knowledgeable people (i.e., experts) who can make timely decisions. Have the technical expertise to design quickly. Use partnering to facilitate collaboration and resolve problems at the site.
- ❖ Quickly execute a contract or agreement that addresses responsibilities and risks. Obtain a basic agreement and follow up with a formal contract.
- ❖ Find a contractor that has the resources to start immediately. The contractor must have financial capacity together with immediate access to the required crews and equipment.
- ❖ Offer larger incentives, because emergency work places more risk on the contractor to perform rapidly.
- ❖ Ensure that designs consider material availability and logistical limitations.
- ❖ Collaborate with suppliers, fabricators, and contractors before the bid.

Recommendations

Departments of Transportation should:

- ❖ Establish Emergency Project Delivery Teams (EPDTs) with the necessary subject matter experts to evaluate and work on project design and delivery.
- ❖ Include contractor input during the design development phase of an accelerated project; contractors can provide knowledge about constructability issues that can make construction proceed smoother and faster.
- ❖ Have a pre-established Incident-Command System (ICS), similar to that used by most emergency responders. An ICS consists of organizational hierarchy and procedures for the management of incident(s) and a mechanism for controlling personnel, facilities, equipment, and communications (see www.osha.gov/SLTC/etools/ics/index.html). The ICS should be interdisciplinary and organizationally flexible to:
 - Meet the needs of incidents of any kind or complexity (i.e., expand or contract)
 - Allow personnel from a variety of agencies to meld rapidly into a common management structure with common terminology
 - Provide logistical and administrative support to operational staff
- ❖ Have an established Executive Management Team (EMT) that can be responsible for emergency project delivery decisions. The EMT will decide on when to advertise and award, what procurement mechanisms to use, which contract type to use, and what the delivery schedules will be. The EMT will make decisions based on recommendations by the EPDT and others. EMT decisions need to be clear and must be made within a short time frame so that the scope of work and objective are clearly identified and communicated to the staff.
- ❖ Develop and train key staff and engineers in the decision-making skills needed to respond effectively to an emergency-recovery effort.
- ❖ Establish flexible, accelerated PS&E processes. Allow predesignated options, yet actively seek contractor/fabricator constructability knowledge.

CHAPTER 2 : EMERGENCY ACCELERATED CONSTRUCTION

- ❖ Streamline the addendum-request process.
- ❖ Consider establishing on-call engineering contracts. In addition, the DOT needs to be able to enter into construction contracts quickly in response to emergency needs¹⁰.
- ❖ Develop procedures and criteria for the use of large incentives/disincentives and responsive bid requirements.
- ❖ Have the ability to expedite construction administration processes. The shop drawing-review process should be expedited by delivery via e-mail directly to all interested parties. The request-for-information process should also be expedited by e-mailing information directly to all interested parties. Software-development companies are offering Web-based project management software that supports online document collaboration sessions and electronic tracking of file activity; these programs can be used to speed shop drawing-review processes.
- ❖ Create a post-event Lessons Learned Team to document lessons learned from the project. The team should consist of subject matter experts in structural analysis, loads, reinforced concrete, prestressed concrete, structural steel, maintenance, geotechnical, materials, construction, and other relevant fields.
- ❖ Train personnel on how to share large files electronically. With an increasing amount of information provided electronically, the ability to access this information at the project level, in a timely manner, is critical. Consider adding wireless mobile broadband cards to laptop computers.

Community awareness is a vital part of project success. It is critically important to maintain positive community relations and to keep the media informed. The media will help to disseminate information about detour routes and construction progress. Personal contact is the best way to deal with the community. When disseminating information:

- ❖ Identify the work activities and locations
- ❖ Identify the work hours
- ❖ Explain impacts to progress
- ❖ Share the schedule
- ❖ Provide a point of contact for obtaining more information

¹⁰Caltrans (with FHWA agreement), under a Director's Order, can approve new emergency construction contracts. These can be force account contracts (noncompetitively bid projects paying on a time-and-materials basis), emergency limited-bid contracts, informal bid contracts, or emergency equipment rental. These can be initiated verbally within minutes, depending on the urgency. The department keeps an active contractor listing to reference depending on the area and type of work specified in a Director's Order.

Planned Accelerated Construction

To meet community desires and specific externally imposed project duration constraints, transportation agencies must often take steps to accelerate the completion of their projects. By careful planning of preconstruction activities and thoughtful staging of field operations, projects can be accelerated and roadways opened with only minimum inconvenience to the traveling public. To induce contractors to speed construction work, many agencies are using I/D-type contracts.

Two common factors that have contributed to the success of planned accelerated projects are partnering and provision for a time period between contract execution and the start of construction. These delayed construction start periods provide time for detailed planning, approval of shop drawings, and procurement of long lead-time materials.

This section of the report uses case studies to present background material about each of the visited projects and to explain how each project was accelerated. Topics discussed include agency acceleration approach, contracting method, and the roles and responsibilities of the primary stakeholders. Each of these topics was probed by open discussions with the DOT or with highway contractors. Key factors that led to each project's success are listed at the end of each case study.

Rebuild of the I-15 Devore Corridor, Devore, California

In 2004, as part of its Long-Life Pavement Rehabilitation Strategies (LLPRS)¹¹ program, Caltrans used an innovative approach to rebuild a heavily traveled section of I-15 in the city of Devore (see Figure 3.1). The Devore corridor carries approximately 110,000 ADT, about 10% of which is heavy trucks. In contrast to typical urban freeways in California, which have lower traffic volumes on weekends and higher traffic volumes during weekday peak rush-hour periods, the Devore corridor has both high weekday commuter peaks and high leisure traffic volumes on weekends. The two highest peak traffic volumes are northbound on Friday afternoon and southbound on Sunday afternoon, when leisure travelers in the Los Angeles area are going to and returning from Las Vegas.

During this project, a 2.8-mile stretch of badly damaged concrete lanes was rebuilt in only two single, continuous closures (also called extended closures) totaling 210 hours, using counter-flow traffic (i.e., flowing in the opposite direction to the main traffic flow) and 24-hour-per-day construction operations. Traditional nighttime-only closures would have required 10 months of work, as estimated on the preconstruction schedule. Instead, the rebuilding took 19 days, with each extended closure for one roadbed lasting 9.5 days.

¹¹CA4PRS *Implementation Project for Long-life Pavement*, California Department of Transportation, State of California, www.dot.ca.gov/newtech/roadway/llprs/index.htm



Figure 3.1 Location map of the I-15 project at Devore

Project Description

The preconstruction analysis sought the most economical reconstruction closure scenario while integrating the competing concerns of construction schedule, traffic impact, and agency cost. Four closure scenarios were compared: 72-hour weekday, 55-hour weekend, one-roadbed continuous (24/7), and 10-hour nighttime. The analysis concluded that the continuous/extended closure scenario would be the most economical. Compared with traditional 10-hour nighttime closures, the preconstruction analysis indicated that the extended closure scenario (two single-roadbed continuous closures) would need about 80% less total closure time, resulting in about 30% less road-user cost due to traffic delay, and about 25% less agency cost for construction and traffic control.

This analysis was performed using Construction Analysis for Pavement Rehabilitation Strategies (CA4PRS). CA4PRS identified the costs associated with road-user traffic delay to determine appropriate incentives and disincentives for the construction contract.

Initially, Caltrans moved ahead with the project assuming the use of 72-hour weekday closures due to major concerns about traffic delay on weekends for Las Vegas-bound leisure traffic. However, at public hearings Caltrans met with strong opposition from weekday commuters to the 72-hour weekday closures. The weekday commuters felt that their time delay was of greater value than that of leisure traffic. Although the contract was awarded based on the 72-hour weekday closures, Caltrans adjusted the reconstruction plan to one-roadbed continuous closures just one month before the first extended closure was set to begin.

For this type of work in California, the Devore Project was the first to implement an automated information system in the work zones. Prior to construction, it was decided to have a 24-hour command center. The system provided motorists with real-time information on travel and detour routes. The information was posted on permanent and temporary changeable message signs placed at strategic locations where roadway users could make decisions about travel routes. As part of an interactive public outreach program, the information was also posted on a traffic road map accessible on the project Web site.

By structuring the work as continuous, Caltrans was able to specify rapid-strength concrete with a 12-hour curing time rather than fast-setting hydraulic cement concrete (FSHCC) with a 4-hour curing time. The 8-hour time advantage of FSHCC is offset by these factors:

- ❖ Higher concrete slump and material stickiness
- ❖ The need for more delivery trucks and a smaller paving machine
- ❖ The restriction to single-lane paving at one time
- ❖ The typically rougher finished surface, which frequently requires diamond grinding after curing

In addition, FSHCC is about twice as expensive as Type III PCC in California.

Another measure to speed the work was the substitution of a 6-inch new asphalt concrete base (ACB) instead of the usual 6-inch lean concrete base (LCB). According to a study at the Pavement Research Center, University of California, Davis-University of California, Berkeley, the two types of bases perform almost equally well.¹² LCB requires a 12-hour curing time before PCC slab paving. LCB also requires placement of a bond-breaker to minimize friction between the base and slab. The bond-breaker increases the risk of early-age cracking and the placement process would slow paving production. The ACB scenario, additionally, permitted parallel production of the base and slabs, with each operation utilizing its own resources, while the LCB needs to use the PCC plant and a paver.

A widened 14-foot-wide lane, rather than the usual 12-foot-wide lane, tied the new concrete shoulder to the outermost truck lane. However, high project bids in the first round of bidding resulted in altering the rehabilitation scope. The initial scope included reconstruction of two lanes (the outermost and adjacent), but the revised project included reconstruction of only the outermost lane and targeted partial (about 10%) slab replacement on the adjacent lane.

Project Execution

The I-15 northbound roadbed was closed for reconstruction first, and northbound traffic was switched to the southbound side via median crossovers at the ends of the work zone. The two directions of traffic shared the southbound lanes as counterflow traffic separated by a Quickchange Movable Barrier system. The same process was repeated for reconstruction of the southbound roadbed. The use of the moveable barriers, at a cost of \$1.5 million, helped balance traffic impacts on commuters and weekend travelers by providing dynamic lane configuration. Twice-daily operations required only 30 minutes to move the barrier (see Figure 3.2) and convert one additional lane temporarily from the rehabilitated asphalt concrete shoulder to accommodate peak directional commuter traffic.

¹²Venkata Kannekanti and John Harvey, "Sensitivity Analysis of 2002 Design Guide Rigid Pavement Distress Prediction Models," Pavement Research Center, University of California, Davis-University of California, Berkeley, June 2005, p. 23.

The work combined conventional construction materials and operations with state-of-the-practice technologies to expedite construction and minimize traffic impacts. The contract required that the contractor have contingency plans for items identified by previous LLPRS case studies as risks that could impact progress. One of these was the possibility of encountering poor subgrade during demolition and excavation. It was agreed that FSHCC could be used, either to achieve more production at the end of the closure, to make up for any unforeseen delay, or as a temporary paving material in case of an emergency. Project features that contributed to traffic control included the following:

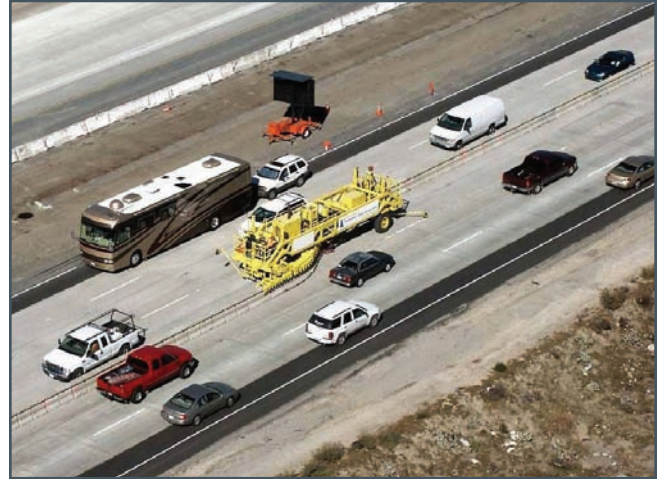


Figure 3.2 *Moving the I-15 median barrier*

- ❖ A **project command center** facilitated DOT coordination between disciplines (e.g., construction, design, traffic, and public affairs) and with other agencies. The command center also enabled remote monitoring of traffic and construction on closed circuit TV.
- ❖ Caltrans **shared information** and received constructive feedback from the local community through the High Desert Commute Advisory Committee.
- ❖ Caltrans allocated \$65,000 to establish free **commuter bus service** to promote ridesharing. Fourteen buses were added to existing lines serving commuters traveling from the High Desert to the south, increasing overall usage by 40%.
- ❖ The Freeway Service Patrol **tow-truck service** removed 1,243 disabled vehicles from the work zones at a cost of about \$100,000.
- ❖ The Construction Zone Enhanced Enforcement Program **improved traffic control** and enforcement in the construction work zones. The California Highway Patrol issued 1,034 traffic citations during the construction period.
- ❖ Contractor **production rates** exhibited a significant learning curve. The majority of the reconstruction operations during the southbound reconstruction (later in the project) were 28% more rapid for slab removal and 22% more rapid for paving than those of the northbound reconstruction (earlier in the project). The continuous lane reconstruction on the outer truck lane had twice the productivity of the random slab replacement operation on the inner truck lane.

Synopsis of Acceleration Efforts

Planning

Caltrans made a dedicated effort to analyzing the impacts of different road closure scenarios. The scenarios supported best alternative decisions in terms of construction speed and cost – both cost of construction and cost to the public. Caltrans also retained the contractual authority to open the freeway prior to the end of closure due to emergencies (e.g., severe weather, fires, vehicle accidents, or construction-related problems that would compromise the quality of the finished product). Under such circumstances, the contractor was required to use FSHCC, hot-mix asphalt, or cold-mix AC as temporary paving materials to be eventually replaced with specified materials.

Contract

The contract had two I/D provisions to encourage the contractor to complete the closures on time. One was to minimize the duration of each roadway closure (a closure incentive bonus of \$300,000) and the second was to minimize the total closure days of the entire main reconstruction work. The latter incentive was set at \$75,000 per day for each day less than 19.

Public Outreach

Prior to construction, large employers and affected business (i.e., airports and postal and package service companies) were informed about the project through project fliers, public meetings, and intensive media outreach. Project planners hoped that the dynamic effort to raise public awareness would prompt a 20% reduction in peak-hour traffic demand; the effort was successful.

Surveys on the project Web site showed dramatic changes in public perception of the “Rapid Rehab” approach of the extended closures from initial reluctance and objection to positive support.

Design

The design specified rapid-strength concrete with a 12-hour curing time rather than FSHCC with a 4-hour curing time and substituted a 6 inch new ACB for the usual 6 inch LCB.

Partnering (Teamwork)

Caltrans used formal partnering on this project.

Underlying Fundamentals of Success

The advantages of using this method of accelerated construction were:

- ❖ Shorter period of disruption for the traveling public
- ❖ Greater life expectancy for the new pavement than could have been obtained using nighttime closures
- ❖ Improved safety for motorists and workers
- ❖ Significantly reduced construction costs (by about \$6 million)

Caltrans credits the success of the project to two factors: its public involvement and outreach campaigns and project planning: “Our massive public outreach campaign and available data are what made this project a success.” In the five months preceding the extended closures and while the closures lasted, the project Web site received nearly 100,000 hits and played an important role as an interactive tool to gain input from the public. Community Web surveys indicated that most (72%) of the people who used the site considered the project information it provided useful to their trip planning¹³. Planning by Caltrans as to how the project work should be scheduled was the second key to the success of accelerating this paving project.

¹³Lee, Eul-Bum, David K. Thomas, “Accelerated reconstruction of I-15 Devore corridor,” *Public Roads*, Vol. 70, No. 4, Jan.-Feb. 2007, www.tfhr.gov/pubrds/07jan/05.htm.

Yerba Buena Island Bay Bridge, San Francisco, California

Viaduct Roll-In

The Yerba Buena Island (YBI) Viaduct carries I-80 traffic across the island and links the East Spans of the SFOBB with the YBI Tunnel. A 348-foot portion of the YBI Viaduct needed to be replaced (or significantly retrofitted and modified) to accommodate a detour structure required to allow traffic to bypass construction on YBI during the replacement of the East Spans of the SFOBB. The replacement structure was also needed to replace a section of the YBI Viaduct considered seismically deficient.

Numerous advance-planning studies for both retrofit and replacement of this section of the YBI Viaduct were completed. All required significant traffic delays (lane closures and short-term bridge closures for approximately 8 hours) for at least nine to 12 months to complete the project. Construction was risky due to the close proximity of live traffic and tight schedules for closures. These all were deemed too risky and disruptive to implement.

The last advance planning study looked at building a new structure next to the existing structure and then quickly demolishing the old structure and moving in the new structure. This **Demo-Out-Move-In** strategy required at least three full days of bridge closure. It was felt that the public would be more accepting of a three-day closure than months of traffic delays. The other major advantage of this strategy was that construction would take place away from live traffic, reducing risks both to the traveling public and to the construction timeline schedule.

Project Description

The project goal for the viaduct replacement was to limit the bridge closure to three days. Traffic Operations estimated that the economic impact was best minimized with the three-day shutdown compared to the conventional staged partial detours that would take more than a year. Labor Day weekend 2007 was selected as the target timeframe for roll-in as the bridge had the least traffic demand over the Labor Day weekend and thus the closure would inflict the least economic impact.

The selected design was a cast-in-place/posttensioned box girder with transverse girders and large edge beams spanning column supports. The edge beams sit on bearing pads placed on top of the columns and are tied to the support columns with structural steel pins. This enabled the superstructure to be placed onto the support columns with minimum complexity.

The construction sequence was developed with input from the construction contractor and the bridge-moving contractor. It was decided to move the bridge with skid shoes that run on oiled steel tracks. The bridge section was pushed with hydraulic rams. The bridge had to be designed to withstand the moving loads. The basic construction sequence was as follows:

- ❖ Prepare a level staging area adjacent to the existing structure for construction of the new superstructure. In this case, two large soil nail walls were needed to provide the level staging area for the roll-in operation.
- ❖ Build the new support columns on the side of the existing viaduct.
- ❖ Build the new superstructure, including temporary support columns, in the staging area.
- ❖ Place the moving equipment, including the skid shoe rails and rail foundations.
- ❖ Close the SFOBB to traffic for up to three days.
- ❖ Demolish the existing structure.
- ❖ Move in the new structure.

- ❖ Set the new structure down on the support columns and place the column pins.
- ❖ Place the closure pour between the new and existing viaduct.
- ❖ Open the SFOBB to traffic.

Project Execution

The staging area required level ground for the skid shoes to perform adequately. New temporary concrete columns were built in the staging area that mimicked the location of the new columns. This was required to minimize differential settlement at support locations during construction. This proved to be expensive, since the temporary columns were almost as expensive as the permanent columns.

The cast-in-place/posttensioned box girder was built on falsework and then posttensioned. The falsework was then removed, and the moving equipment was installed between the temporary columns.

A test lift was performed; this proved to be an essential step because the bridge-moving contractor underestimated the weight of the structure. Corrections were made to the setup to facilitate a smooth lift once the actual move commenced.

The SFOBB was closed to traffic at 8 p.m. Friday. Since there was no room to roll out the existing superstructure span, the contractor chose to demolish the 6,500-ton structure on site within two days. The existing floor beams (75.5 feet long each) were saw cut and hauled across the east span of the SFOBB to a dumpsite in Oakland. The substructure was demolished using demolition hammers as depicted in Figure 3.3.

Lifting and moving the new span into place required slightly less than three hours (see Figure 3.4). The clearance between the new and existing structure was 3 inches on each end. The superstructure was set on its new columns, and the column pins were installed. The column pins were dropped through prefabricated holes in the edge beam into prefabricated holes in the columns. The successful installation of the column pins was a testament to the tight tolerances the contractor was able to achieve during construction and moving.

Traffic was placed back on the Bay Bridge at 6 p.m. Monday, 11 hours ahead of the scheduled 5 a.m. Tuesday opening. A video of the demolition and roll-in operation can be found at www.mtc.ca.gov/news/info/bay_bridge_9-07.htm.



Figure 3.3 *Demolition of the old YBI viaduct*

Synopsis of Acceleration Efforts

Design

The design team worked closely with the contractor and the heavy-lift contractor in developing the construction sequence.

New Technology

Although the innovative roll-out/roll-in (RO/RI) equipment had never been used on a Caltrans project, Caltrans was willing to pursue a risky operation for which there was no in-house experience and which, if it was not successful, would impact reopening the bridge to traffic.



Figure 3.4 *Roll-in of the new YBI viaduct*

Contract

This was a project fraught with risk and unknowns. Caltrans does not have authority to do Design-Build but was seeking a way to obtain more contractor involvement in the design of this challenging work. Therefore, the original contract was performance based; however, as the number of issues began to mount, Caltrans took complete control of the design and the construction work was completed by force account.

Partnering

The partnering process between Caltrans and the contractor was expanded to include the designer, subcontractors, and fabricators. This collaboration was instrumental to the project's success.

Risk Planning

Caltrans has a six-step process that constantly monitors existing risks and seeks to anticipate potential risks. The steps are:

1. **Management planning** – Determine and ensure that the methods used are suitable to ultimately mitigate risks.
2. **Identification** – Identify the risks using a mix of standard risks and project-specific potential risks.
3. **Qualitative analysis** – Rank risks based on how likely they are to occur, as well as their impact on project goals, including whether the risk will make the project exceed the budget or finish behind schedule and, if so, by what amount.
4. **Quantitative analysis** – Estimate the probability that a project will be on time and on budget, based on the qualitative analysis.
5. **Response planning** – Consider, using team structures, various strategies to mitigate risk, including altering the project's scope, schedule, or budget, or mitigation by taking early steps to reduce the threat, impact, or possibility of a risk.
6. **Monitoring and control** – Assign a risk owner to monitor and manage each risk.

More information can be found on the Bay Bridge Web site at <http://baybridgeinfo.org/risk-mgt>.

The test lift of the span, which demonstrated problems, allowed time to adjust the jacking arrangement and led to successful roll-in of the span.

Public Outreach

Caltrans began an extensive notification campaign six months before the closure, spending nearly \$1 million on Web sites, flyers, radio ads, and pre-movie commercials to warn Bay Area, Central Valley, and Southern California residents of the closure. The DOT also subsidized mass transit, paying for BART to offer limited overnight service and for the ferry systems to operate additional boats.

Underlying Fundamentals of Success

Risk management has proven to be an invaluable asset in dealing with the inherent risks in a project as massive and complex in scope and scale as the Bay Bridge, of which the YBI Viaduct Roll-In is just one component. The SFOBB East Spans Project schedules are all centered around and driven by the Self-Anchored Suspension (SAS) Bridge. To keep the entire project moving forward, the YBI Viaduct span had to be completed expeditiously to fit into the time available for the subsequent YBI Transition Structure, which in turn has to match to the SAS schedule. (The contracts can be viewed at <http://baybridge360.org/>.)

The Caltrans risk-management process is a methodical approach of planning for, identifying, analyzing, responding to, and monitoring project risks. The process helped project leaders respond to design challenges (i.e., a structure capable of resisting the loads imposed by the moving process). Contract risk-transfer elements maintained a focus on acceleration (e.g., responsibility for bridge closure duration). Risk management was the impetus for the test lift as a strategy to mitigate risk.

Detour and Transition Structures

The YBI Detour contract is for constructing a temporary detour from the YBI tunnel to the existing East Span of the Bay Bridge as shown in Figure 3.5. This detour will be used to maintain traffic on the existing East Span of the Bay Bridge while the YBI Transition Structure contract completes the tie-in from the new SAS Bridge to the existing YBI tunnel. The YBI Transition Structure will transition the SAS span's side-by-side road decks to the upper and lower decks of the YBI tunnel. Part of the transition work is included in the YBI Detour contract.

The first in a series of phases to build the temporary 900-foot-long YBI Detour, as well as the YBI Transition Structure, took place during the 2007 Labor Day weekend (the YBI Viaduct roll-in described in the previous section). That seismically upgraded section of roadway will serve as a connection to both the YBI Transition Structure and the YBI Detour. The plan for constructing the span that will connect the detour to the existing bridge is to roll out the span that currently connects the bridge to the viaduct and roll in the detour-connecting span. To accomplish this, everything must be ready by Labor Day weekend 2009.



* The YBI viaduct is the lighter roadway in the lower left part of this figure.

Figure 3.5 Aerial view of the YBI detour (right*)

Contract Description

A YBI Detour contract to construct a temporary detour structure for the planned SAS Bridge was awarded in early 2004. Re-advertisement of the SAS superstructure contract in 2005 changed the detour's timeline. The required suspension of the work and design risk issues caused Caltrans to significantly change the YBI Detour contract.

Originally, the YBI Detour work was bid as an A+B contract. Given the initial scope of the contract, the selected B factor was significant: \$100,000 per day. It was based on the estimated costs of potential owner and user damages not only associated with the contract, but also to the corridor as a whole (as the contract was corridor-critical at the time of letting). Contract liquidated damages were set at \$100,000 per day under the same basis. The contract was crafted as a performance-based contract in which design parameters were stated and the contractor was to develop a design complying with those parameters. Additionally, the contractor's design had to be approved by Caltrans engineers (something close to DB). Caltrans could not let a pure DB contract because at the time of this work state statutes prohibit the use of that contracting method on highway projects. Ultimately, two-thirds of the detour contract was taken back by Caltrans and the design was completed by the state.

The contract also included other innovations to expedite corridor completion:

- ❖ A “Working Drawing Campus” provided for co-location of working multidisciplinary cross-functional teams to facilitate expedited completion of design/construction working drawings
- ❖ The specifications required that the bidder submit its preliminary design with the bid package
- ❖ The specifications provided for bidder compensation (stipend)
- ❖ All prospective bidders had to be prequalified

The critical factor driving the original contract was schedule. At the time that the contract was issued, it was thought that the detour needed to be constructed as soon as possible to reduce the time needed to achieve seismic safety for the bridge. No I/D contract provisions were associated with interim contract milestones or contract completion in the original contract. The contract, which has now been modified by CCOs, has incentive provisions to expedite completion of the tie-in. Some of these CCOs provided only incentives, while others provided incentives and disincentives. In addition, CCOs to compensate the contractor for working additional shifts and providing additional resources were authorized. Caps on the CCO incentive and disincentive amounts were provided. While the work related to some of these CCOs is still ongoing, the incentive CCOs appear to have been extremely effective in expediting critical contract milestones.

Design, fabrication, and construction sequencing and scheduling are all now tightly integrated, accelerating the construction approach for a bridge closure and the RO/RI of the detour span (see Figure 3.6) over Labor Day weekend 2009.



Figure 3.6 *YBI detour construction*

Project Execution

The contract provides for VE and CRIPs. As the contract progressed, many workshops were jointly conducted with the contractor (including subcontractors and fabricators), designers, and DOT personnel. These meetings provided for an open exchange of design and constructability ideas. Many of these concepts were adopted in the ultimate design and construction.

Caltrans established the work schedule for this project in conjunction with the occupants of YBI, the U.S. Coast Guard, the City and County of San Francisco, and the contractor with the goal of allowing the contractor maximum flexibility to achieve delivery of the project. The Coast Guard station can be seen in Figure 3.5 under and immediately to the right of the detour work. In essence, the overall East Bay Bridge program schedule and permit conditions drove the project work schedule.

Caltrans was developing the design as the work progressed, and that process was the other factor guiding the scheduling of work. Specifically, the plans were released sequentially: foundations, substructure, and superstructure. Even these were broken down into many subpackages (e.g., material procurement prior to final design completion). Each set could be considered mini-PS&E packages. When a construction package was implemented, the contractor was given as much flexibility as possible to phase the work.

In March 2007, the YBI Detour contract was modified to better integrate the detour work into the total bridge project schedule and to reduce overall project risks. This CCO advanced the YBI Transition Structures foundation work into the YBI Detour contract. YBI Detour viaduct structural sections were fabricated in Korea, and the first shipment of the viaduct steel was received at the Port of San Francisco in September 2007.

The detour bridges were being constructed without impacting bridge traffic. However, for the RO/RI operation, a very specific traffic management plan is being developed that is far above normal Caltrans practices.

The program management team met with the contractor in 2009, and it was decided that the final determination on the feasibility of a Labor Day 2009 RO/RI of the east tie-in segment can be made once the skid bents loading details, final shop drawings, and bearings are approved.

Synopsis of Acceleration Efforts

Risk

Caltrans and the contractor took numerous actions to reduce project risk. A second fabricator was brought on board to remove the truss fabrication from the schedule's critical path, thereby mitigating schedule risk. Caltrans secured the permits for a crane trestle on the YBI shoreline, which allows flexibility in construction going forward and reduces schedule risk during the critical weeks before the traffic switch. (This crane trestle can be seen in the foreground of Figure 3.6) Caltrans moved some of the YBI Transition Structure advance work into the YBI Detour contract.

Partnering

As the contract progressed, the partnering arrangement between Caltrans and the contractor was expanded to include the designer, subcontractors, and fabricators. This collaboration has been instrumental to the project's success.

Design/Construction Overlap

Once Caltrans took over the design process, individual design packages were released to the contractor as they were prepared. This approach allowed design and construction to proceed concurrently.

Underlying Fundamentals of Success

Matching the availability of the detour to the SAS construction schedule was the primary project situation that drove the accelerated construction process. Given the situation (i.e., changes in the schedule for the SAS Bridge), the Caltrans/constructor team did an excellent job in finding solutions to a multitude of problems and overcoming many challenges. Planning has been the key to success; however, both the DOT and the contractor concede that they would have welcomed the opportunity and time to plan more extensively.

The project and the 2007 roll-in clearly demonstrate the importance of partnering. A partnering atmosphere that includes all members of the project team has been a repeated theme found in all accelerated construction projects. The partnering obviously must include the DOT and the contractor, but with an accelerated project it must be expanded to include the designer, subcontractors, and fabricators. Total collaboration by all parties is instrumental to project success.

The planning process that determined and considered public expectations was begun six months prior to the first full bridge closure of Labor Day 2007. These same expectations are currently being analyzed relative to the detour RO/RI. Public outreach will again be critical to successfully completing the detour connection to the existing Bay Bridge. The RO/RI operation has not yet been performed, and that is the element of the project that will define success.

Replacement of the Duval Street Bridge, Jacksonville, Florida

The Florida Department of Transportation (FDOT) replaced the Duval Street Bridge in Jacksonville during a seven-month period in 1999. This was a fairly small project that was performed over a decade ago; however, the lessons learned have helped both the DOT and the contractor improve their approaches to accelerated construction. The compressed schedule was dictated by the need to provide access to a major sports stadium before the start of the following season. The replacement bridge contract specified 120 calendar days for construction and had an incentive of \$15,000 per day for each day of early completion. Liquidated damages were \$1,924 per calendar day beyond the allowed time.

Project Description

The new bridge is 528 feet long and has two 12-foot lanes with 8-foot shoulders (see Figure 3.7). It has six spans constructed on concrete pilings and bent caps, with a deck supported by AASHTO Type IV beams. The project also involved 450 linear feet of mechanically stabilized earth walls and the construction of sidewalks and barrier walls. The contractor completed the project in 70 days, 50 days ahead of schedule, and earned an incentive of \$750,000. The success of this project encouraged FDOT to expand the use of incentive contracts.

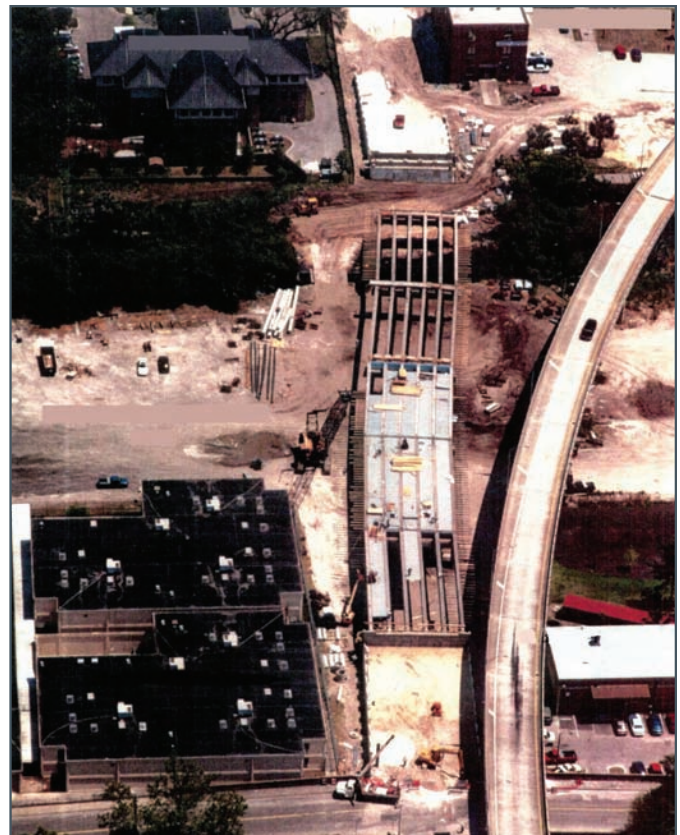


Figure 3.7 Duval Street Bridge during construction

Project Execution

Some project challenges that were overcome by the project team included the time constraints of construction, the project's close proximity to neighboring facilities (a home for battered women and children, a homeless shelter, and an historic building), and remediation of contaminated soil on the project site.

Factors that contributed to the project's success were:

- ❖ Extensive preplanning by the contractor ensured that once the work started in the field it could proceed smoothly. The scan team found that for many of the accelerated projects studied, preplanning was a critical key to success.
- ❖ Partnering: "Nobody wanted to be labeled as an impediment to completion."
- ❖ The use of a demand services contract to handle site remediation (what FDOT calls a "push-button" contract). FDOT was able to use a separate Contamination Assessment Remediation (CAR) contractor with the necessary skills and workforce to support the construction contractor. Realizing it was a contaminated site, FDOT placed all remediation work with its CAR contractor. This included pipework that required excavation into possibly contaminated material and preparing the pile-driving locations for the construction contractor. The CAR contractor worked under a separate work-order type contract.
- ❖ A six-month delayed start/procurement period between contract execution and start of construction allowed the entire shop drawing process, the pile casting, and AASHTO beam casting to be completed. The project was bid in June, but construction did not start on the site until the following January.
- ❖ FDOT eliminated the usual test pile and specified the pile lengths in the contract documents. They then used a Pile Driving Analyzer (PDA), which is a dynamic load testing and pile driving monitoring system, to assess the capacity of piles as they were driven.
- ❖ The contractor formed and poured precast caps on site.
- ❖ The road was completely closed to traffic.
- ❖ The contractor shared the performance incentive bonus with his subcontractors.

Synopsis of Acceleration Efforts

Up-Front Planning

One distinct difference was the level of detail in the contractor's schedule. They admitted going to a much greater level of detail in planning for the project due to the schedule constraints and overall contracting risk. Because of this experience, the contractor now plans all projects in greater detail.

Partnering

Formal partnering meetings were held for this project; normally, partnering is conducted at the contractor's option. Everyone agreed to check their egos for the project's duration. All participants were willing to work together and openly discuss innovative ideas. Decisions and commitments were made and upheld.

Delayed Construction Start

FDOT provided six months between contract award and the beginning of construction at the site. Floating the construction start date was an important factor in the project's success, and it worked in everyone's favor. The procurement period allowed review and approval of all shop drawings, production of all piles, production of all Mechanically Stabilized Earth (MSE) wall panels, and production of all beams. It also allowed the contractor

to elect to use the precast cap option and cast them on site, just outside of the ROW. The materials payment concept can help make it economically feasible for the contractor and/or keep prices down. The “payment of material on hand” procedure to deal with the procurement period was a lesson learned on this project, and FDOT has incorporated it on subsequent projects.

Elimination of the Test Pile Program

The DOT allowed procurement of all project piles and avoided any time delay between the test piles being driven, receipt of pile lengths from geotech, and casting of production piles. The time savings offset the cost of purchasing longer piles.

Contractor Innovation

The contractor used precast pile caps, which allowed setting of caps as soon as the piles were driven. Precast caps were an alternate and were slightly more expensive. They weighed 150,000 lbs each. The four precast caps saved three to four days per bent. The contractor was able to do this because FDOT allowed direct contact between the contractor and the Engineer of Record.

Work Schedule Considered Project Neighbors

The contractor chose to work 7 am to 7 pm, with no night work. There was no night work due to social concerns, such as the proximity of the women’s/children’s shelter. The City ordinance did not permit work between 10 p.m. to 7 a.m. The contractor worked every weekend except Easter and Independence Day.

The new MSE wall was constructed less than 3 feet from the historical building’s foundation. Because of the close proximity of this structure, the contractor hired an independent laboratory to make a preconstruction video and perform crack surveys. Once the existing features and damages were documented, the laboratory monitored vibrations during pile driving and placement of the backfill behind the MSE walls. The use of pre-augered holes for the piles and premium soil for backfilling behind the MSE walls kept vibrations from exceeding the maximum threshold.

DOT Remediation Contract in Place

The project site was contaminated by arsenic, lead, polychlorinated biphenyls, and chromium. FDOT had a Contamination Assessment Remediation (CAR) contractor on-call to support the bridge contractor’s construction work. This remediation process was an important factor in the project’s success. The remediation contractor demolished the old bridge, removed contaminated soil, and placed drainage structures in contaminated soils.

The original plan was for the remediation contractor to excavate the entire width of the pile bent, a 10 foot × 10 foot section, for pile-driving activities. The bridge contractor suggested test probing to determine the extent of obstructions. This resulted in handling and disposing of less contaminated material, saving both money (\$400,000 of CAR cost) and time. This was captured in a supplemental agreement.

Decision Making at the Lowest Level

FDOT and the contractor had a successful partnering process and placed a great deal of attention on planning construction phases/sequencing of work. “Nothing works without total commitment from all team members.”

Total Road Closure

Road closure was not an issue because there were nearby alternate routes; however, work needed to be completed before the start of the National Football League’s season.

Underlying Fundamentals of Success

Both FDOT and the contractor pointed to the partnering process, which everyone bought into, as the key to accelerating this project. Issues were resolved in a timely manner and all parties had a sense of urgency. Project partnering created an atmosphere where options could be freely discussed, and FDOT was open to the contractor's ideas. There was a sense of partnership and acceptance of innovation for the purpose of delivering a quality bridge in a limited time period.

The contractor admitted that for this accelerated project much more time was spent planning the work up front and believes that this effort was critical to achieving project success. In fact, once the contractor came to realize the benefit of such in-depth up-front planning, the process has become almost standard for all of its projects. Transportation agencies should seek ways to encourage contractors to put more effort into up-front planning.

Essential to accelerating the project, and the prime contractor's ability to deliver the bridge within the desired time period, was the in-place remediation contract. By having a separate and independent CAR contractor, FDOT handled pre-identified contaminated work items. This consequently relieved the prime contractor of a major unknown in executing the work. Additionally, the DOT's ability to call on the CAR contractor to deal with contamination that had not been previously identified was also very important.

Improvements to the SR 9A/I-295 Corridor, Jacksonville, Florida

FDOT is in the process of upgrading SR 9A around the east side of Jacksonville to interstate standards. When the improvements are completed, SR 9A will become part of the I-295 loop around the city. FDOT used contractor incentives, consultant incentives, and DB to accelerate several of the projects in this corridor improvement effort.

Project Description

One of the largest of the SR 9A corridor projects was the \$110 million SR 9A/I-295/I-95 interchange south of Jacksonville (see Figure 3.8). The project involved multiple bridges and more than 33 lane miles of concrete paving. Because Super Bowl XXXIX was scheduled to be played in Jacksonville on February 2, 2005, FDOT wanted to accelerate the project and have it open some two weeks before the game.



Figure 3.8 *SR 9A/I-295/I-95 interchange south of Jacksonville*

Project Execution

Because of the high daily vehicle traffic (95,000 ADT) in the work zone area and the multiple traffic phases that were required to accommodate the work, the contractor was required to diamond grind the entire final surface.

An interesting aspect of the project that raised its overall quality was FDOT's decision to use Performance Related Specifications (PRSs) on the US 1/SR 9A portion of the project – the first time FDOT used a PRS. PRS provides rational methods for contract price adjustments based on the difference between the as-designed and the as-constructed life cycle cost of the pavements. From the contractor's perspective, the extra attention to the details up front enabled the paving to be completed months ahead of schedule to a standard above the specification.

Synopsis of Acceleration Efforts

No Excuse Bonus

The contract documents for the SR 9A/I-295/I-95 project included a \$3 million No Excuse Bonus for an opening milestone of January 15, 2005. The guidance for a No Excuse Bonus can be found in Section 1.2 of the FDOT Construction Project Administration Manual.¹⁴ The No Excuse was later revised to February 20 because of hurricane impacts.

7. No Excuse Bonus

No Excuse Bonuses should be used only on projects that have the highest levels of impact on abutting businesses and the traveling public. A designation Level of Community Awareness 4¹⁵ is a prerequisite. The No Excuse Bonus concept can be used to achieve particular milestones or for total project completion by a certain contract day or a specified date. The Scheduling Engineer must provide a maximum number of days and set the bonus date based on calendar date or an actual contract day.

Contractors will sometimes strive to earn a No Excuse Bonus; however, problems can arise if, after making the commitment, the contractor falls short because of uncontrollable events.

Liquidated Savings

This contract also had a provision for Liquidated Savings at \$7,500 per day up to a maximum of \$2 million for a total incentive of \$5 million.

¹⁴ Construction Project Administration Manual, Section 1.2, "Contract Duration and Alternative Contracting Techniques," revised September 14, 2007, www.dot.state.fl.us/construction/Manuals/cpam/New%20Clean%20Chapters/Chapter1s2.pdf.

¹⁵ Level 4 requires that the project is interstate highway work.

10. Liquidated Savings

The contractor will be rewarded for each calendar day the contract is completed and accepted prior to the expiration of the allowable contract time. The daily amount of liquidated savings should be equal to the liquidated damages

The contractor earned an incentive of \$217,500 (29 days @ \$7,500 per day).

Creating a Team

With several projects in one corridor, FDOT saw an opportunity to encourage CEI consultants to embrace construction acceleration. It therefore built incentives into the CEI contracts. This approach was a response to the perception that the CEI team could interfere with the contractor achieving the maximum incentive offered in the contract because the CEI has no incentive to finish early because it may have no other work.

The consultant CEI advertisement read:

The Department has set a target of \$10 million for the services identified above, excluding those projects identified as optional. If a fee at or below that amount is negotiated with the selected consultant and the Department considers the performance of the consultant to be satisfactory, the consultant will be offered a supplemental amendment for the optional projects contingent upon satisfactory negotiation of a fee for those services.

While FDOT was pleased with the results, it is not clear that there was any benefit from this to the acceleration effort.

Design-Build

To accelerate two other projects in the corridor, FDOT used the DB contracting method. Both projects were successful. In the case of one of the projects (a new alignment), FDOT handled the ROW agreements and had all the permits in hand for the contractor.

Incentive/Disincentive

The final project, a challenging interchange bid at \$84.8 million, was let using the usual DBB process. However, FDOT entered into a \$3,300-per-day incentive agreement after contract award.

Underlying Fundamentals of Success

FDOT has worked hard to take a planned approach for accelerating many of its projects and has experimented with numerous methods for reducing construction time. A key comment that was often repeated when assessing the success of these efforts to reduce time was that decision makers must be accessible.

In the case of the SR 9A corridor work, which was within the Jacksonville municipal limits, there were issues with noise caused by night work. Though FDOT does not have to abide by the City's regulations, it has sought by contract language to make contractors aware of the noise ordinance and hold them in conformance. Contract language used to inform contractors of the Jacksonville Noise Ordinance include

FDOT Standard Specifications: Section 7, Article 7-1 **Laws to be Observed**, Sub-article 7-1.1, “The contractor is required to become familiar with and comply with all Federal, State, county and city laws, by-laws, ordinances and regulations that control the actions or operation of those engaged or employed in the work or that affect materials used.”

FDOT Standard Specifications: Section 8, Article 8-4 **Limitations of Operations**, Sub-article 8-4.1, “Night Work,” “The contractor is required to comply with all applicable regulations governing noise abatement.”

Plan Sheet M-13 **Pile Driving**, Note 1 stated, “All pile driving activities are subject to the Noise Ordinance of the City of Jacksonville.”

Addendum 2, which was written in Response to Requests for Information from the Mandatory Pre-Bid Meeting, included the following: “Regarding noise restrictions, refer to Sheet M-13. For additional information regarding the Jacksonville Noise Ordinance, please contact XXXX with the Duval County Air and Water Quality Office at (904) xxx-xxxx.

Even with these notices about noise limitations imposed on project work hours, there were complaints that FDOT hindered the contractor’s efforts to secure the offered bonuses. In the case of projects that have I/D clauses or offer a lump sum bonus, the bid documents and contract should explicitly state the work-hour limitations. Reference to rules or regulations that seem clear can cause misunderstandings and arguments when they impact the contractor’s ability to achieve a bonus.

Furthermore, it was clear from contractor comments that they do not like “No Excuse” lump sum bonus situations. This contracting approach should only be used when there is a real reason for acceleration, such as an emergency situation. There was also discussion of A+B bidding as a way of accelerating a project. It was voiced by some that the success of A+B is subject to the general contracting climate. If there is plenty of work, contractors will tend to put their resources elsewhere and not be receptive to the added risk of an A+B contract. Conversely, when there is a lack of work, A+B is a viable method for accelerating a project.

Replacement of the I-10 Bridges Over Escambia Bay, Pensacola, Florida

FDOT replaced the I-10 twin bridges over Escambia Bay, which, after Hurricane Ivan, had been repaired to immediately restore the flow of traffic under restricted conditions. The new three-lane bridges were built south of the existing bridges at the very limit of the State’s ROW. This alignment was chosen because the engineers were trying to minimize the impact of pile driving operations on the damaged bridges. They did have to obtain a temporary easement on the south side of the ROW from the Florida Department of Environmental Protection.

Project Description

The award amount was \$242 million and the final contract was \$255 million. Each bridge has three 12-foot travel lanes and 10-foot inside and outside shoulders. They have a minimum clearance over water of 25 feet, while the clearance of the original bridges damaged in Hurricane Ivan had a clearance of less than 12 feet. Over the navigation channel, the spans reach 65 feet above the water, 10 feet higher than the original bridges; this was dictated by the Coast Guard. The project began in April 2005 and was substantially complete by autumn 2007. The eastbound bridge opened in December 2006 and the westbound bridge in December 2007. Although both bridges were opened, construction work continued until April 2008 on items such as lighting and demolition of the old bridges.

FDOT utilized its existing DB process, but the contract for building a replacement bridge across Escambia Bay also had an A+B component. A \$10 million lump sum bonus was offered as the incentive to open the Phase I eastbound bridge by December 29, 2006. The eastbound bridge actually opened on December 19, 2006.

The FDOT proposal guidance stated:

1. Maintain or improve, to the maximum extent possible, the quality of existing traffic operations, both in terms of flow rate and safety, throughout the duration of the project.
2. Minimize the number of different Traffic Control Plan (TCP) phases, that is, the number of different diversions and detours for a given traffic movement.
3. Accomplish Contract Work Item #1, that is, completion of bridge structure(s) and placement of four lanes of traffic on the completed bridge structure(s) by December 15, 2007.
4. Accomplish completion of bridge structure(s).
5. Demolish existing bridge structures (including fender system and dolphins ¹⁶).
6. Maintain reasonable direct access to adjacent properties at all times.

Proposals were evaluated by the formula:

$$\text{Proposal rating} = \frac{\text{Price} + \text{Time}}{\text{Technical Score}}$$

The engineer for the winning DB team stated, “We only had about three weeks to put the proposal together. In that time, we took the whole bridge to 30% design, with certain elements at 60 to 90%. The design had to be at a level the JV was comfortable with.” ¹⁷ FDOT’s bid analysis is provided in Table 3.1; Table 3.2 is a summary of the major project quantities.

	Team A	Team B	Team C
Technical score	137.5	136.2	126.6
Bid price	\$242 million	\$360 million	\$317 million
Contract days	862	932	905
Final ranking	1	2	3

Table 3.1 DB bids for replacing the I-10 Escambia Bay bridges

¹⁶ Timber fender systems serve as navigation aids to vessel traffic by delineating the shipping channel beneath bridges. They are designed to survive a multitude of bumps and scrapes from vessels and to absorb kinetic energy while redirecting an errant vessel. Timber dolphins serve to protect the bridge substructures that are not designed to resist the impact of vessels. (“3.14 Fender Systems,” *Structures Design Guidelines*, Florida Department of Transportation, January 2009, <http://www.dot.state.fl.us/structures/manlib.shtm#archivedpublications>)

¹⁷ Buckley, Bruce, “Replacement of Florida’s Escambia Bay bridges on a fast track,” *Constructor*, (publication of McGraw-Hill Construction), September-October 2006, <http://constructor.construction.com/features/build/archives/2006-09escambiaBridges.asp>.

Item	Size/Type	Quantity	
Concrete piles	24-in.	5	
	36-in.	1,274	
Precast pile caps		133	
Cast-in-place pile caps		934	Cy
Girders	Bulb-tee 78-in.	986	
	Type-II	63	
	Posttensioned	30	
Concrete		71,881	Cy
Steel reinforcement		20,263,683	Lbs

Table 3.2 Summary of quantities for the I-10 Escambia Bay bridges

The success of the FDOT’s timeline (see Table 3.3) for constructing a replacement bridge depended on the expeditious settlement of the NEPA process. Information gathered through the NEPA process was included in the request for proposals (RFP). Concurrent activities allowed for the timely delivery of both the NEPA documents and the contract documents. The project was advertised while in the midst of the NEPA process. Prospective DB firms were not only allowed, but encouraged, to attend all NEPA coordination and public meetings¹⁸.

Date	Event
15/16 Sep. 2004	Hurricane Ivan makes landfall
5 Oct. 2004	NEPA process begins
21 Dec. 2004	Project advertised for letters of interest
10 Jan. 2005	Shortlist of DB firms
3 Feb. 2005	Public information workshop
10 Feb. 2005	VE study completed
11 Feb. 2005	NEPA completed
16 Feb. 2005	RFP approved by FHWA and issued
20 Apr. 2005	DB contract executed

Table 3.3 I-10 Escambia Bay bridges contract award timeline

¹⁸ *Transportation Invest In Our Future*, Accelerating Project Delivery, American Association of State Highway and Transportation Officials, August 2007, www.transportation1.org/tif7report/tif7.pdf.

Project Execution

It was clear from the geotechnical data gathered when the original bridges were constructed, from the railroad bridge further north, and from six borings completed during the proposal phase that the site soil conditions were variable. Only after the first test piles were driven and an additional 60 borings were made during construction did the engineers come to appreciate the high variability of the soil deposition in the bay. The unpredictability even from pile to pile forced the contractor to use longer piles; most are 145 feet long, but the longest one measured 170 feet and weighed 80 tons.

Additionally, the contractor had to deal with three major storms and take protective measures for every named storm. For a major storm, it took five days to demobilize the sizeable fleet of barges and 21 large-capacity cranes that were on site. Most were moved to protected locations upriver. During the project the contractor had to demobilize six times because of storms, four times in 2005 and twice in 2006.

Hurricane Katrina in August 2005 did little damage at the site; however, it did disrupt the flow of materials. Precast concrete elements were coming from two yards, one in Tampa, Florida, and another in Pass Christian, Mississippi. The Tampa plant was not severely impacted, but the one at Pass Christian was destroyed.

Synopsis of Acceleration Efforts

Partnering

Management should ensure that the parties on the project can make decisions in a timely manner and have an appreciation for the realities of building a major project. The project team members have to be willing to make changes that are necessary to adhere to the schedule and deliver a quality project. It may even be necessary to change people.

Design Flexibility via Design-Build Process

The DB team elected to use 36-inch-square precast piles, a first for an FDOT project. The larger piles created several advantages. Only five piles were needed for each substructure unit; standard 30-inch piles would have required seven or more per unit and a pier structure having more cast-in-place concrete. There is efficiency in the total number of pieces for a given span with piles, precast beams, and caps each weighing roughly the same. Therefore, the same equipment could pick everything. Other construction issues were:

- ❖ Pile size was also based on pile hammer availability (ensuring that it would not take extraordinary equipment).
- ❖ Precast element size was limited by the lifting capacity of the equipment at both the precast yards and placement point on the project.
- ❖ Florida does not allow precast deck panels, so they were not proposed.

Multiple Precasters

Precast was a significant element in the design decision. The bridge was not built linearly. The contractor started with three fronts and later opened two additional fronts. Multiple precasters were needed to maintain the supply of components and to reduce project risk.

Risk Mitigation

The contractor had multiple back-up strategies besides using two precasters. It elected to use a local off-site batch plant and also looked at alternative state-approved suppliers.

Subcontracts

The prime contractor wrote incentives and disincentives into some supplier and subcontractor contracts.

Incentive/Disincentive

There was much discussion about lump sum in lieu of daily I/D. FDOT could adjust a disincentive date but not a No Excuse incentive unless it was a force majeure issue. Contractors preferred a daily I/D rate and had an aversion to lump sum incentives, because there was too much risk that they could not control.

Quality

The contractor was committed to quality and did not want to be delayed by the need for rework; therefore, the QC manager was empowered to stop a work activity. (This is a comment from the contractor.)

Underlying Fundamentals of Success

Partnership is critical to successfully complete an accelerated construction project. Issues will always arise and the team must be committed to finding satisfactory solutions in a timely manner. The contractor developed the Traffic Control Plan (TCP) based on a planned sequence of work activity. However, due to storms, 90 workdays were lost. A change was then suggested to “Get it open.” This was an alternate means of opening the bridges to traffic by widening the approach pavement. FDOT agreed to this alternate process and agreed to pay some of the additional cost.

Safety is only achieved if there is commitment by everyone. At the peak of construction there were 350 craft employees going out on boats to their work sites and having to climb stair towers.

Repetition was the key to the accelerated schedule. The execution plan was thoughtfully worked out so that pile driving, forming, and beam placement reached a production rate of 39 feet of bridge per day. The contractor had constructed other accelerated construction projects, and those previous experiences jumpstarted this project’s learning curve.

Design cannot require special or one-of-a-kind equipment.

Contract language must address force majeure exceptions to No Excuse. Contracts need to have clear language addressing catastrophic events and how they will be handled in terms of contract time, I/D time, and the lump sum bonus date, whether the event is a hurricane, war, permits, or other occurrence outside the control of both the DOT and the contractor. The force majeure language must spell out consideration for direct and indirect effects both on and off the project. The contract language needs to specifically address:

- ❖ Additional time
- ❖ Price escalation
- ❖ Overhead for additional time
- ❖ Acceleration cost to return to the baseline schedule
- ❖ Subcontractor actions, such as abandoning the contract or inability to perform because of uncontrollable events.
- ❖ Supplier actions, such as abandoning the purchase orders or inability to perform because of uncontrollable events
- ❖ Force majeure events and definition of what constitutes a force majeure event

- Duration of the impact
 - Impact to time for milestones and completion
 - Acceleration to meet deadlines
- ❖ Whether direct on-the-project or off-the-project impacts are eligible for consideration

Reconstruction of Interstate 10, Houston, Texas

Originally constructed in the 1960s, the 23-mile stretch of Interstate Highway (IH) 10 (a.k.a., the Katy Freeway) from its intersection with IH 610 west to the City of Katy was badly congested 11 hours per day with ADTs in the range of 280,000 vehicles per day. The pavement on sections of the Katy Freeway was 30 and 40 years old. Flooding of the mainline interstate roadway and frontage roads was a continuous problem during heavy rainfall. Maintenance costs had reached nearly \$8 million a year. The Texas Department of Transportation (TxDOT), therefore, embarked upon a \$2.8 billion Katy Freeway Reconstruction Program.

The planning process for the reconstruction program began with a Major Investment Study in 1995. This study focused on the entire IH 10 Katy Freeway Corridor. It involved assessing mobility needs and the environmental and community effects of many alternative solutions. Inputs were received from the public and local agencies. A locally preferred alternative was selected and the ultimate design was based on recommendations from all affected stakeholders. Design work commenced in 2000 with an Environmental Impact Statement that reflected the social, economic, and environmental impacts of reconstruction. The FHWA issued a Record of Decision in January 2002. TxDOT began the reconstruction of the IH 10 in late 2003 and reached completion early in 2009.

Project Description

The limits of the Katy Freeway Program started at the Harris/Fort Bend County line (City of Katy) approximately 20 miles from Houston and the IH 610/IH 10 interchange (see Figure 3.9). The existing configuration included dual three-lane mainlines, dual two-lane frontage roads, and one reversible high-occupancy vehicle lane. The proposed configuration included dual four-lane mainlines, dual three-lane frontage roads, and two managed toll lanes. In addition, two freeway-to-freeway interchanges were reconstructed and 27 grade-separated intersections were built. The estimated cost of the project is \$2.64 billion (based on final bid prices), with about two-thirds of this cost for construction and one-fourth for ROW acquisition and utility relocation. The remaining budget cost covered design, program management, and construction management.

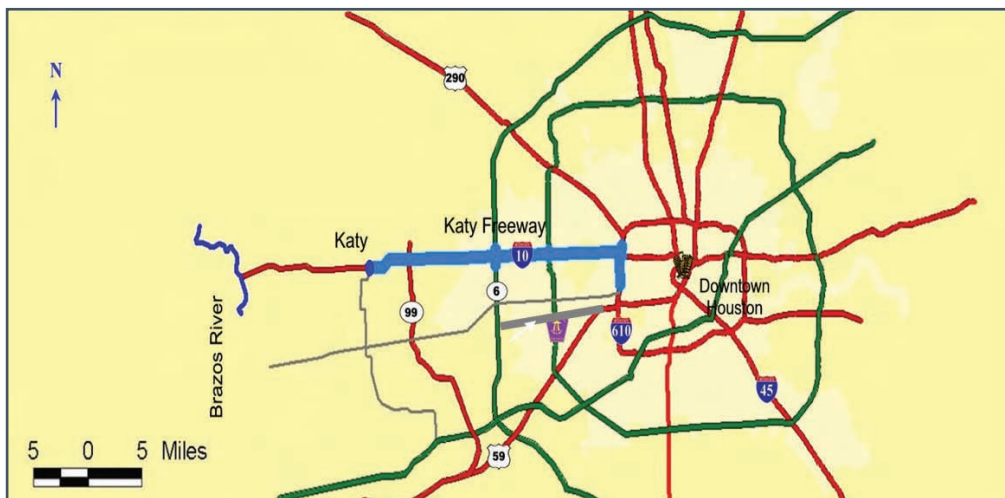


Figure 3.9 *Katy freeway program location*

The Katy Freeway Program was one of the largest highway construction projects in the state’s history and included nine major construction contracts. It was also the first project in the nation to construct toll lanes on an existing interstate highway. TxDOT hired a general engineering consultant (GEC) to provide oversight guidance to the 10 section design consultants contracted by the Houston District of TxDOT to perform final design. The section design consultants also provided support services during construction, including shop drawing reviews and responses to requests for information. The GEC also hired subconsultants to provide various services for executing and managing the project as directed by the district.

Project Execution

Detailed design for the Katy Freeway Program started in 2001, with ROW acquisition and utility relocation starting in mid-2002. Detailed design, ROW acquisition, and utility relocation were performed concurrently after mid-2002. Construction started in 2003 (see Figure 3.10).

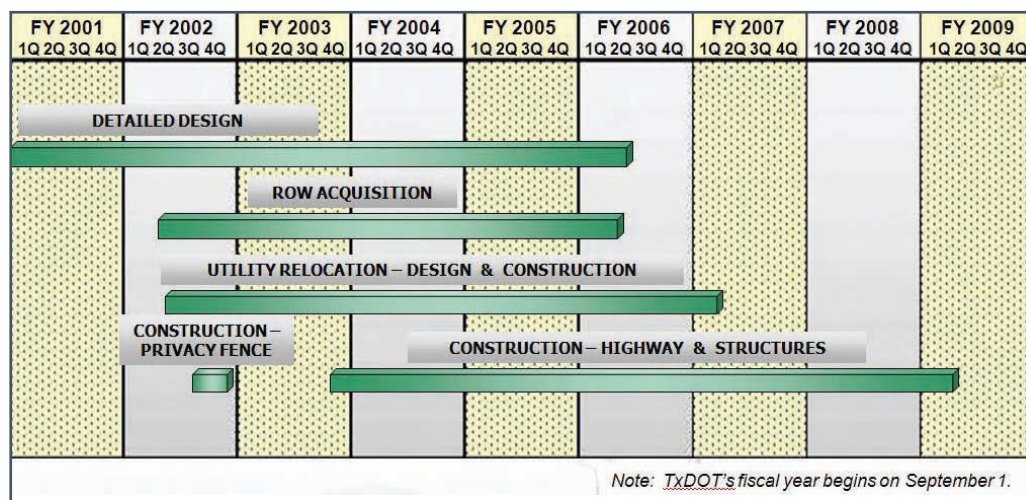


Figure 3.10 Katy freeway program location

The project delivery approach for the Katy Freeway Program was considered DBB, as all construction work was bid competitively after completion of design for a portion of the project. The construction effort was split into nine major packages. Two contractors were awarded the construction of the nine contracts; one contractor was awarded six and the other contractor was awarded three (see Figure 3.11).

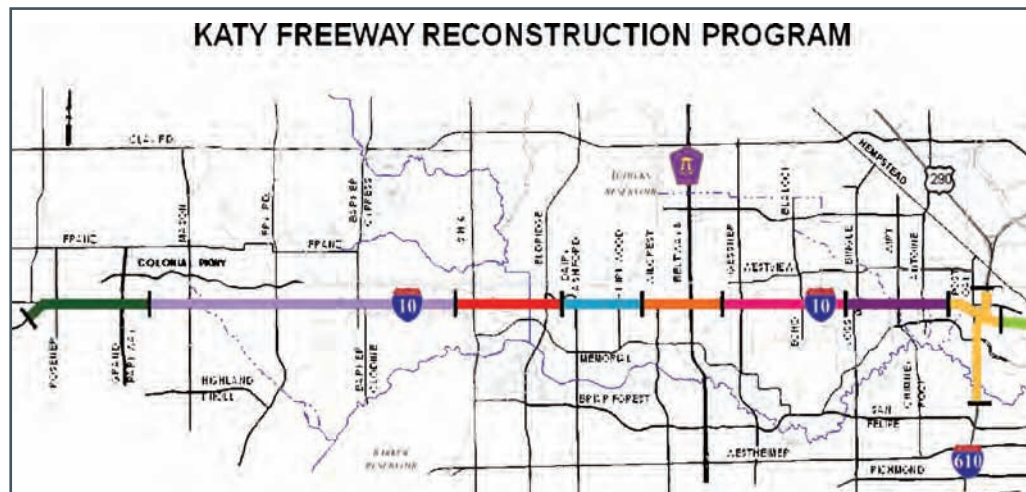


Figure 3.11 I-10's nine construction packages

The decision to use an accelerated construction approach began in the detailed design phase. During this phase, TxDOT and the GEC closely coordinated their efforts and worked with construction personnel. These two teams combined efforts to reduce construction time by using past experiences and known variables to estimate anticipated time schedules. The design team carefully scrutinized every design element and asked, “How can we reduce the expected construction time?” Every bid item was evaluated from a constructability perspective. Strategic milestones were defined, and project incentives/disincentives were tied to each milestone. In addition, lane rental fees were used to maximize the efficiency of lane closures.

The design team, relying on TxDOT’s relationship with the Associated General Contractors of America, worked closely with contractors to obtain constructability reviews. TxDOT modified its use of constructability reviews to incorporate these reviews at various design milestones (e.g., 60%, 90%, etc.). This approach was a departure from the normal practice of performing constructability reviews at the end of design, just prior to construction letting. Contractor input on estimated construction durations and other contract timelines was provided as part of these reviews.

TxDOT also worked closely with major suppliers and manufacturers to help expedite material availability. This interface resulted in an overview of key construction elements. Specifically, the focus of this effort was on plans and specifications and anticipated requirements for quantities of materials, especially materials requiring longer lead times for delivery.

TxDOT typically does not start construction until ROW is acquired and utilities are relocated; however, this approach would not work for the Katy Freeway Program due to the decision to accelerate construction. A modified ROW plan was prepared to integrate simultaneous acquisition of ROW and the timing of utility relocations with selected construction activities. ROW acquisition required the purchase of 442 parcels and more than 910 relocations. In addition, more than 35 different utility companies were involved in relocations based on more than 130 utility agreements. The ROW team acquired over 223 parcels in 18 months, a significant contribution to the project’s acceleration. At the same time, the GEC coordinated utility relocations. The size of this effort was substantial and cost an estimated \$311 million. For example, 24 miles of various pipe sizes were relocated (see Figure 3.12).



Figure 3.12 *Utility relocation*

The nine construction contracts were bid and awarded over two years. The first contracts were awarded for work at each end of the total project limits, including the IH 10 and IH 610 interchange at the east end of the project. Major roadway construction started at the west end of the project, near Katy, Texas. The construction packages were generally awarded moving from west to east (see Figure 3.11). The traffic requirements during construction focused on maintaining the existing number of main lanes and frontage lanes, maintaining local access across the corridor, and keeping the existing high-occupancy vehicle lanes operating. Generally, construction was performed from the inside out. In other words, main line construction was completed first, while ROW acquisitions and utility relocations were completed near frontage roads (see Figure 3.13). Once mainline construction was completed, construction on the frontage roads commenced (see Figure 3.14).

Synopsis of Acceleration Efforts

Implementation of Fast-Track Project Schedule

The decision to use an accelerated construction approach was made early in the detailed design phase. Project management, in consultation with and approved by district management, developed an initial traffic control plan based on the amount of ROW available and the scope of work to be performed. With input from construction and local contractor personnel, a detailed Critical Path Method schedule was prepared based on the project's proposed traffic control plan. The schedule also included early purchase of rights-of-way and relocation of critical utilities, both planned as concurrent activities. The work included addressing traffic control coordination between each of the nine projects.

Significant Early Construction Input

Several contractors provided feedback and suggestions involving constructability issues (e.g., equipment placement, material staging, etc.) and quantity reviews. Some suggestions were incorporated into the plans. Many of the contractor suggestions involved expanding the work zone and the traffic control plan restrictions, unaware that the TCP was developed with the schedule of ROW acquisition.

Aggressive Work Schedule

The work schedule was 24/7, including nights, weekends, and holidays, with a project duration of four to five years. The contracts had three float (or noncharge) days per month that the contractor was required to take. Because the contractor did not want to disrupt momentum, it was difficult to get the contractor to agree to the use of or need for these float days.

Incentive/Disincentive Structure Motivated Contractors

Incentives and disincentives (I/Ds) were used throughout the corridor in various amounts and times, depending on the work and its complexity (i.e., major interchange, metro section with and without structures, or rural section). I/Ds were tied to hard milestones as follows:

- ❖ **Project milestones** usually would involve finishing and operational acceptance of a major part of the project (e.g., opening the westbound main lanes or frontage roads).
- ❖ **Interim milestones** would involve finishing a section and/or a particular task to facilitate and improve commuters' time (e.g., opening a direct connector or a ramp heavily used for commercial developments).



Figure 3.13 Mainline I-10 construction



Figure 3.14 Frontage road construction

- ❖ **Project completion milestones** used in some of the projects with a final completion date (i.e., hard date) with No Excuse clauses.

In addition to I/Ds, lane rental fees were used to encourage constrained timeframes for major closures. Approximately \$50.9 million was paid for meeting milestone incentives. Early completion incentives paid amounted to \$7.5 million. Lane rental fee assessments resulted in another \$3.7 million in credits for the contractors.

Continuous Use of Partnering

Partnering was a big part of the success of the Katy Freeway construction contracts. Weekly partnering meetings were attended by all the players (e.g., contractors, contractor superintendent/engineer, utility companies, section designers, inspectors, project managers, area engineer, assistant area engineer, ROW staff, public information officers [PIOs], schedulers, and many others). Networks were formed from the first day and contacts were made. A point was made to understand each participant's role, responsibilities, and issues. Timely solutions to problems were the result of this close interaction. These meetings were formally held every week, one separate meeting for each construction project.

Partnering meetings were also held informally as needed when critical issues arose. These meetings were successful in putting peer pressure on entities involved in critical utility relocation efforts. Each party was challenged to keep the project on schedule.

Management of Multiple Construction Contracts

The construction plan included nine different contracts. The district, with the assistance of the GEC, managed the interface between contractors. During construction, the GEC contract and other design contracts were extended to support construction. Their charter was to review shop drawings, utility relocations, and construction schedules. The GEC also reviewed change orders. This approach improved the time needed to make decisions when problems arose. TxDOT stated that during the design phase, the GEC was a key in coordinating the multiple consultants in phasing construction and project tie-ins. During the construction phase, the GEC supplemented TxDOT forces, because TxDOT simply did not have the staff to cover the multiple projects that were being constructed simultaneously.

Public Awareness Campaign

A public information office was established when construction started. Multiple forms of communication were used to keep the public informed of construction progress (see www.katyfreeway.org/). PIOs attended early traffic control workshops and schedule development meetings as well as partnering meetings after construction started. As a result, the PIOs were well-versed project spokespersons who were able to really understand and explain key milestones (i.e., closures, traffic changes, and phases) and emphasize successes.

Underlying Fundamentals of Success

TxDOT made the decision to accelerate construction early in project development. This decision helped maintain a constant focus on finding ways to support the accelerated construction effort during detailed design, ROW acquisition, and utility relocations. In this way, the construction schedule provided the framework for the program to take only six years; typically, a program of this scope would take from 10 to 12 years.

With construction acceleration the focus, collaboration was the word of the day before and during the construction phase. The design team worked closely with the construction team to carefully evaluate every design element, with a focus on acceleration. Because the project schedule required concurrent work for all major activities, new strategies to coordinate ROW acquisition and utility relocations with construction work

were needed. A ROW team focused on rapid acquisition of a large number of properties through a single service provider. TxDOT and the GEC worked closely with utility companies to ensure timely relocation of priority utilities. Partnering meetings during construction included all participants, including the GEC, local government agencies, and utility companies.

The construction staging and traffic control plan were based on the least conflicts. The construction approach started at the west end of the corridor at Katy and work proceeded inbound toward IH 610. Construction was inside/out, with the main lines constructed first while ROW was acquired around the frontage roads and utilities were relocated. Further, the plan to synchronize improvements at major interchanges helped facilitate construction and add capacity early. The traffic control plan was so effective that the public often cited that, “traffic flows better during construction than it did prior to construction.”

The use of incentive structures placed the emphasis on meeting key milestone dates during construction. This required dedicated staff and on-site decision makers to ensure that issues could be resolved in the field or quickly elevated to the appropriate decision maker within TxDOT. The contractor provided communication devices and satellite offices to enhance field operations and coordination.

Consistent communication with the public was a key to success. Aggressive and proactive interface with the media helped make the media a true communication partner. Media pictures allowed TxDOT to tell its own story. The media expanded the audience reach for advanced notifications and explanations of scheduling and scope of work. Information was disseminated on weekend and long-term closures. When new roadways were opened and major contractor milestones were achieved, celebrations were held with the help of the media. Finally, special events and outreach campaigns were held to celebrate key program accomplishments.

Conclusions: Planned Accelerated Construction

As demonstrated by the projects investigated during this scan, the ability to successfully execute an accelerated project depends on the following:

- ❖ Partnering is a component of accelerated construction that was mentioned on every project visited. The partnering arrangement between the DOT and the contractor is often expanded to include the designer, subcontractors, and fabricators.
- ❖ Public involvement and outreach campaigns are critically important to achieving modified traffic densities during construction operations. Even a slight reduction provides better site access during construction operations.
- ❖ Total collaboration by all parties is instrumental to project success. Close coordination between the design team and the contractor can smooth the way for faster construction.
- ❖ Force account contracting should be considered when a project is fraught with risk and unknowns because of the proposed acceleration.
- ❖ Delayed start/procurement periods between contract execution and start of construction have proven to be effective in reducing traffic impact time because they allow for completion of the shop drawing process and fabrication of long-lead-time items.
- ❖ Repetition was the key to an accelerated schedule.

Recommendations

Departments of Transportation should:

- ❖ Mandate partnering for all accelerated projects; in many cases, partnering must include, in addition to the DOT and the contractor, the designer, subcontractors, and fabricators.
- ❖ Evaluate the benefits of a delayed construction start date or procurement period that allows time to review and approve all shop drawings and production of fabricated items. This may require that payment-of-material-on-hand procedures be clearly defined.
- ❖ Seek ways to encourage contractors to put more effort into upfront planning.
- ❖ Have clear language in contracts that addresses catastrophic events and how they are to be handled in terms of contract time, I/D time, and the lump sum bonus date, whether the event is a natural disaster, war, permits, or other occurrence outside the control of the DOT and the contractor.
- ❖ Make the decision to accelerate construction early in project development. That decision will focus the project team on finding ways to support the accelerated construction effort, including detailed design, the acquisition of ROW, and utility relocations.
- ❖ Encourage contractors to work multiple fronts.
- ❖ Develop procedures and criteria for the use of incentives/disincentives.
- ❖ Use No Excuse lump sum bonus schemes only when there is a real reason, such as an emergency situation.

Community awareness is usually easier to achieve for an emergency project where the facility need is readily apparent. However, with a planned project, the public does not always understand or appreciate the need to accelerate a project and disrupt their normal use of a facility. It is, consequently, very important to create a bond of trust that will eliminate potential problems before they become issues that disrupt the acceleration effort. To be successful, community awareness efforts must be championed by top management, be integrated into the project development process, and continue during the construction phase.

Program Approach to Acceleration

Introduction

The accelerated construction activities of most state highway agencies have focused on delivery of an emergency project or a selected project where a planned acceleration process is viewed as beneficial to the public interest. However, in some agencies, the acceleration approach is being institutionalized at the program level. The Utah Department of Transportation (UDOT) is aggressively implementing a program-level effort to accelerate bridge design and construction. The DOT has instituted an Accelerated Bridge Construction (ABC) program. This chapter provides a summary of the UDOT program-level approach to accelerated construction.

UDOT's organizational structure is decentralized, which is a factor in how business is conducted. There are four regions with a total of 15,500 lane miles of roadway, of which, 4,175 lane miles are interstate. The program typically has more than 150 projects, and the volume of construction in the past has been around \$300 million per year. However, the current program budget is \$1.9 billion, and it will grow even larger with projects added through the American Recovery and Reinvestment Act of 2009. As of early 2009, UDOT has 205 projects at \$2.2 billion.

A key component of the program is the UDOT innovative contracting experience. UDOT has completed 14 DB projects, has 16 under contract, and another four in the procurement stage. In addition to DB, UDOT has pioneered the Construction Manager/General Contractor (CM/GC) approach (similar to Construction Manager at Risk; see NCHRP Synthesis Topic 40-2 for more information on this delivery approach). UDOT has completed eight projects using this delivery approach, has seven under contract, and has one in the procurement stage. Eight of these projects are under the FHWA Special Experimental Projects-14 initiative. Eight others are funded solely by the state.

UDOT also uses I/Ds, A+B bidding, and lane rental contracting approaches to accelerate construction. UDOT just approved a policy that balances user costs with construction by A+B bidding on all projects.

The DOT has an excellent working relationship with the Associated General Contractors of Utah that focuses on partnering and DB boilerplate development. The partnering process is used on all UDOT projects, and partnering sessions are both facilitated and non-facilitated. A 12-hour commitment to partnering training is a requirement for all UDOT staff and contractor project managers and superintendents. Partnering metrics indicate that claims have been reduced from 10 in 2003 to one or two in 2009.

Philosophy

UDOT Executive Director John Njord commented in January 2008:

“It is no longer acceptable in Utah to take months and in some cases years to build our structures. Finding ways to accelerate that process has become paramount and essential for the Utah Department of Transportation to be successful. Reducing bridge construction time from months to days and sometimes hours is critical to that success.”

This quote emphasizes the focus on acceleration and implies a need for broad program support for accelerated construction. UDOT accelerates all projects in its program for the following reasons:

- ❖ Reducing turnaround times
- ❖ Lessening impact of projects
- ❖ Improving trust held by UDOT
- ❖ Responding to the market of public desire

UDOT is reducing project development and construction time while maintaining quality, safety, and price. It is lessening the impact of its projects on the traveling public and reducing the impact of road-user costs on the economy. The DOT is improving the level of trust the legislature and public have in UDOT, and the results are tangible. From 1996 to 2007, UDOT's budgets have expanded to unprecedented levels, a direct result of its ability to deliver the program quickly, efficiently, and consistently. UDOT delivers on its promises. It uses public surveys to determine the public's attitudes toward project delivery (e.g., more pain in terms of traffic disruption is acceptable as long as construction time is shorter). The focus is on the "get in, get out, and stay out" mentality. The public does not complain nearly as much when it is told what is being accomplished.

In addition to focusing on acceleration in relation to time, UDOT is concerned about cost. However, because accelerating construction is often perceived to increase cost, UDOT is implementing a new paradigm of moving from lowest construction cost to lowest total project cost. UDOT looks for ways to accelerate construction throughout the entire project development process. Initial decisions are made during concept development and are generally based on user impacts, but also include items such as risk, delivery schedule, industry resources, and cumulative construction impacts. The decision to accelerate may affect the budget, so it is critical that this decision is made before the funding is pursued.

Focus Areas

UDOT has evolved into a mode of operation that constantly seeks to accelerate project delivery. Initially, like nearly every other DOT, UDOT was punitive in its efforts to accelerate project delivery, focusing on liquidated damages. It then moved to incentivizing contracts to complete work quicker, using DB, A+B, and lane rental. Under these delivery and contracting schemes, time became a biddable quantity. Construction firms could then compete for contracts using time as a commodity. UDOT is now transitioning into a collaborative phase, where the contractor's expertise is utilized in developing project approaches. Collaboration is critical to understanding and nurturing the technical tools that UDOT will rely on in the future to continue accelerating projects. Figure 4.1 shows several of the innovations UDOT is using to reduce project delivery time. A key area is ABC, which was considered the next step in accelerating construction at the program level.

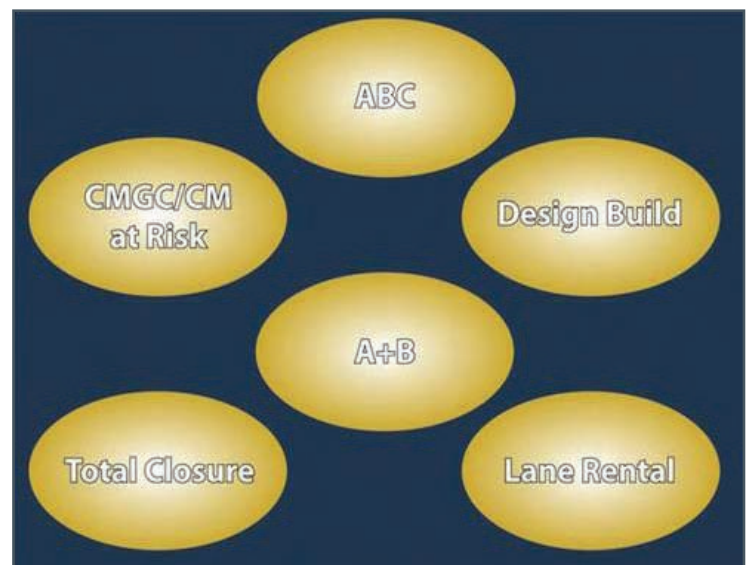


Figure 4.1 *Innovations to reduce project delivery times*

Enabling Accelerated Project Completion

Three areas that have enabled project- and program-level acceleration include innovative contracting, partnering, and changing the agency culture.

Innovative Contracting

UDOT has been involved in innovative contracting for some time, and it is an important tool to facilitating ABC at both a project and program level. Accelerated construction approaches are developed through various means at the program level. CM/GC was pioneered at the central office level. To use CM/GC, UDOT and the FHWA negotiated a Memorandum of Understanding. The CM/GC process draws on the experience of the contractor, designer, and owner. The contractor and designer work together during design to identify and minimize future construction risks.

DB was adopted and refined for use in Utah using a similar process. Specific technologies and practices associated with accelerated construction approaches are identified by the various divisions and regions within UDOT, researched, adopted for use, and applied in real-world situations. Specific approaches to accelerate projects are determined at the project level by project management teams, taking into account maintenance of traffic, input from the contracting community and public involvement, constructability, and maintainability. All levels of the project team provide input into the project approach, from the designer to UDOT senior staff and outside stakeholders.

The initial implementation of any Accelerated Project Completion technique requires an iterative process between design and construction. That is a major reason why new techniques are implemented using innovative delivery methods like CM/GC and DB. These processes allow collaboration between design and construction that is virtually impossible using the DBB environment.

UDOT also uses other contracting methods, such as A+B, lane rental, and I/Ds. UDOT uses some form of I/D on the majority of its projects. I/D clauses are viewed as an important tool for motivating the contractor to help UDOT solve complex issues on projects. UDOT has standard I/D clauses built in to certain standard specifications, including a pavement smoothness bonus and material quality; most additional I/D clauses relate to schedule. UDOT has also used I/Ds for public involvement, traffic control, and utilities.

Partnering

Partnering is mandated by contract on all projects. Partnering is accomplished either formally or informally. Formal partnering is performed with the assistance of a partnering facilitator who has been through the UDOT partnering training program. Informal partnering is facilitated by the Resident Engineer and the contractor superintendent. Both types of partnering involve the project team members evaluating the state of their efforts at least monthly using on-line reporting tools.

Partnering is a process used to resolve problems as quickly as possible and at the lowest possible level. Partnering also reduces claims, because the project team is committed to working together to resolve project issues rather than becoming entrenched and allowing issues to become personal.

UDOT has two phases of partnering training for UDOT construction personnel, the contractor's superintendents, and consultants working on projects. These personnel are required to take both phases of the training. They must either have taken the training or be registered to take the next available training to work on UDOT projects. All other personnel are encouraged to attend.

Contractor and UDOT construction personnel are required to participate formally by contract as previously stated. To help resolve issues as they arise, each project team works together to determine which constituents or

stakeholders should participate. This list is large and may include public involvement liaisons, local government staff, subcontractors, utility companies and their contractors, and designers.

Partnering has an overall effect of reduced claims, lower overall cost, happier personnel, improved communication, and quicker resolution of project issues. This last benefit is important to project acceleration. Figure 4.2 shows the number of claims UDOT has experienced in recent years. In 2005, UDOT started requiring partnering on every project. Figure 4.2 shows that partnering has been a very beneficial tool in reducing the number of claims. UDOT's construction program has grown by approximately 600% over the course of the years listed in Figure 4.2, while effectively reducing the number of claims.

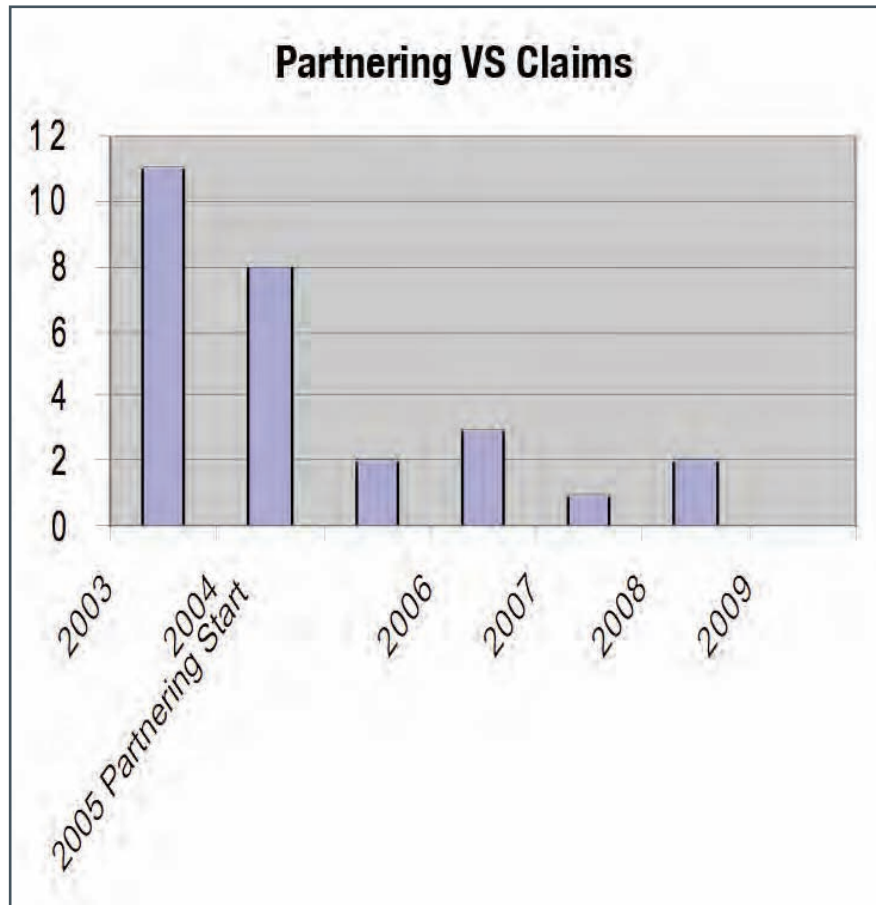


Figure 4.2 Partnering implementation and claims reduction

Partnering is vital on all accelerated construction contracts because of the speed with which decisions are made and issues must be resolved. The contractor and agency personnel must work together as a true team. Significant costs will occur due to the time constraints in the contract if issues are not resolved quickly. The CM/GC process is in some ways a very formal contractual partnering arrangement.

Cultural Change

With any opportunity for improvement comes a need to address the impact the improvement will have on the people who work within the agency. Recognizing that, with improvement, change will occur not just for the sake of change, but also to address real needs. Moreover, recognizing that improvement is healthy and accelerating

projects is beneficial, UDOT has implemented this change from the top down. This effort has been ongoing for some time, involving agency personnel at all levels in the project acceleration process. UDOT staff has, for the most part, bought into the concept of project acceleration as a way of doing business. In cases where new technologies are involved, a critical mass of supporters has emerged to aid in the acceptance of these new technologies as a way of achieving acceleration.

Change was driven by necessity. UDOT, like many other DOTs, has experienced shrinking staff headcount, increasing workloads, and a more demanding legislature and public. Momentum has developed for project acceleration, and expectations have increased for further improvements in reducing project delivery time while lessening the impact of construction on the public.

Change is sustained through strong and consistent support from the highest levels of UDOT management. The reason for change was clear: improvements were required in project delivery time. Change also influenced UDOT's organizational structure. UDOT established a research group that has assisted in the identification and implementation of new technologies and the tracking of improvements. Thus, performance measures were developed so that improvements are visible to end users of facilities. UDOT staff members share in the success of the program and are recognized for their role in this success.

Accelerated Bridge Construction

ABC focuses on innovative methods to decrease bridge construction time. Typically, under ABC, bridge elements are built off site or outside of the area of traffic. Once the elements or a complete section of a bridge is finished, it is transported to the site and rapidly installed. A number of components comprise an ABC program and are shown in Figure 4.3.

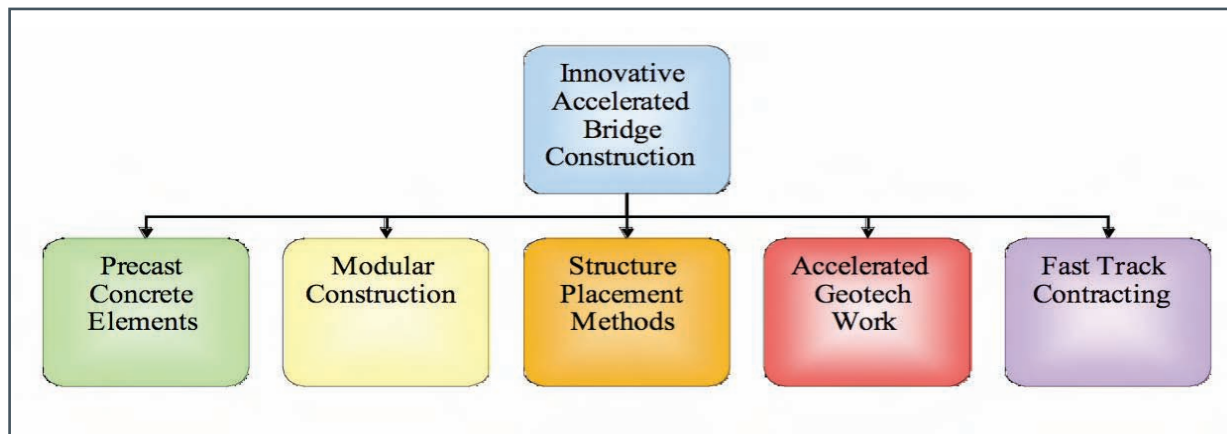


Figure 4.3 ABC components

UDOT's ABC program started with typical precast elements, including girders, culverts, and noise and retaining walls. The program has now advanced to include a number of additional items, including precast deck panels, precast piers, heavy-lift bridge sections, specialty materials, and standards. UDOT has 17 projects, including 80 bridges, completed or under construction utilizing ABC. Some of these projects are listed in Table 4.1.

UDOT is developing standards for the different ABC applications. Phase I is focusing on Self-Propelled Modular Transporters (SPMTs) and precast deck panels, while Phase II is concerned with standards for substructures, bulb-tee girders, seismic details, and approach slabs.

Method	Projects	Bridges
Self-Propelled Modular Transporters (SPMTs)	4	13
Half-thickness precast deck panels	2	47
Prefabricated bridges (Lego bridges)	0	2
Full-depth precast deck panels	8	11
Precast voided slabs	1	2
Segmental bridges	1	1
Heavy-lift cranes	1	1

Table 4.1 *ABC project methods*

To facilitate implementation of ABC, UDOT developed a decision process chart (see Figure 4.4).

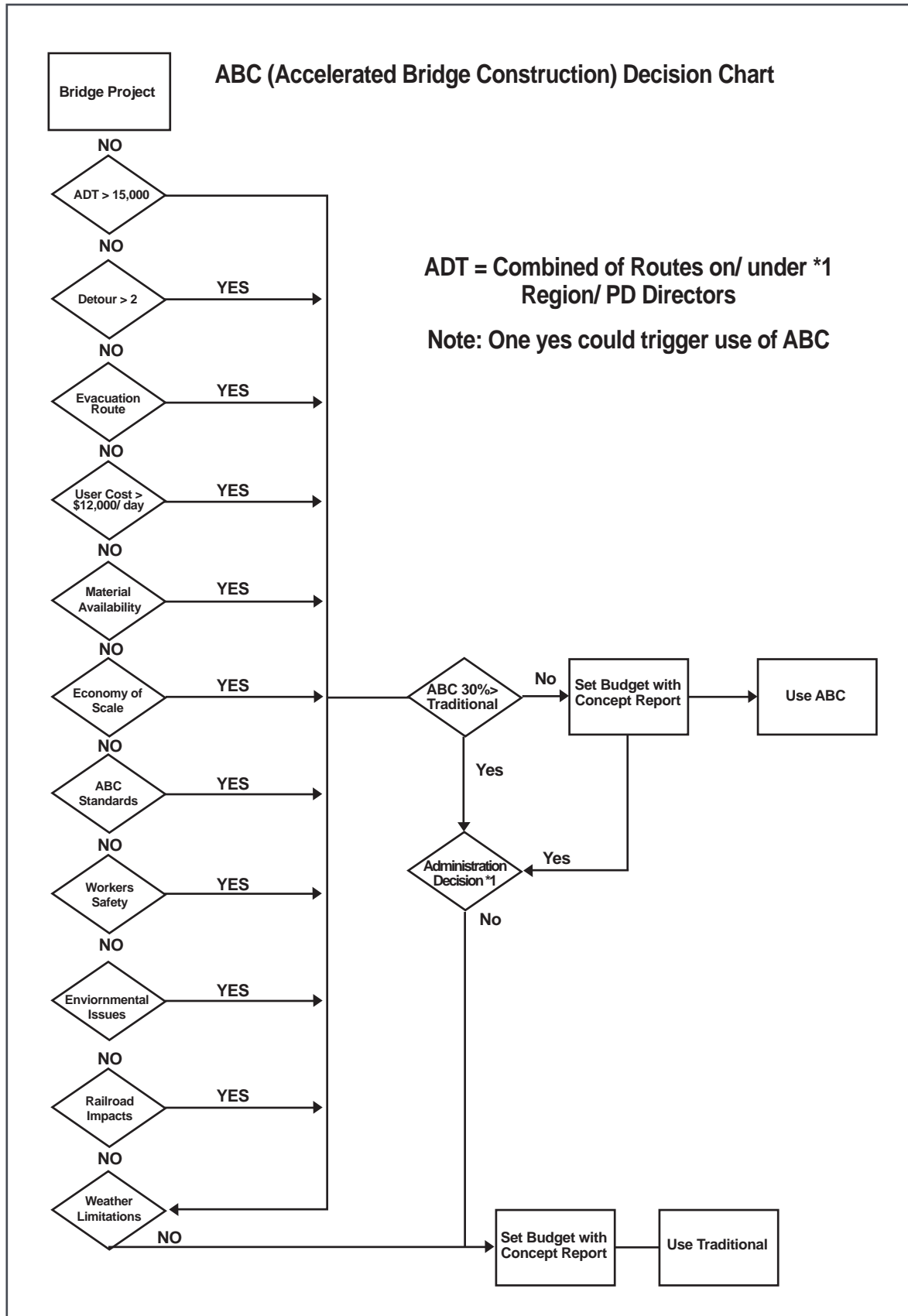


Figure 4.4 ABC decision chart

The intent of the decision chart is to achieve the following objectives:

- ❖ Realize the difference between rural and urban locations
- ❖ Eliminate personal preferences
- ❖ Minimize user impact, crash, traffic, and many other expensive studies
- ❖ Allow for increased use of new technology through reasonable price protection
- ❖ Provide a straightforward flowchart
- ❖ Establish definitive questions
- ❖ Have flexibility for future adjustments

There are 11 decision criteria that require yes or no answers. The outcome is the decision to use ABC or the traditional method of bridge construction. The advantage of such a chart is that it standardizes the decision-making process across the DOT. In this way, consistent decisions can be made throughout the program to determine which bridges should be designed and constructed following the ABC process.

Projects in two areas illustrate the implementation of the ABC process. First, precast deck panels were used on the I-84 – US 89 to SR 167 Weber Road project. This project had three structures, the longest being 586 feet. Two bridges have steel girders (432 and 586 feet long), and one has prestressed concrete girders (187 feet long). The scope of the project was to replace the deck with precast deck panels (see Figure 4.5). Panel fit was an issue of concern because of reverse curves. Further, a railroad and the Weber River underneath the structures limited access and increased the project's complexity.



Figure 4.5 Weber Canyon precast deck panel project panel installation

During the design phase, UDOT used national experts and held pre-bid meetings with contractors. This approach helped identify project-related risks, such as the construction challenges regarding the alignment of the panels, forming and pouring the parapets, and installing the approach slab (see Figure 4.6 and Figure 4.7).

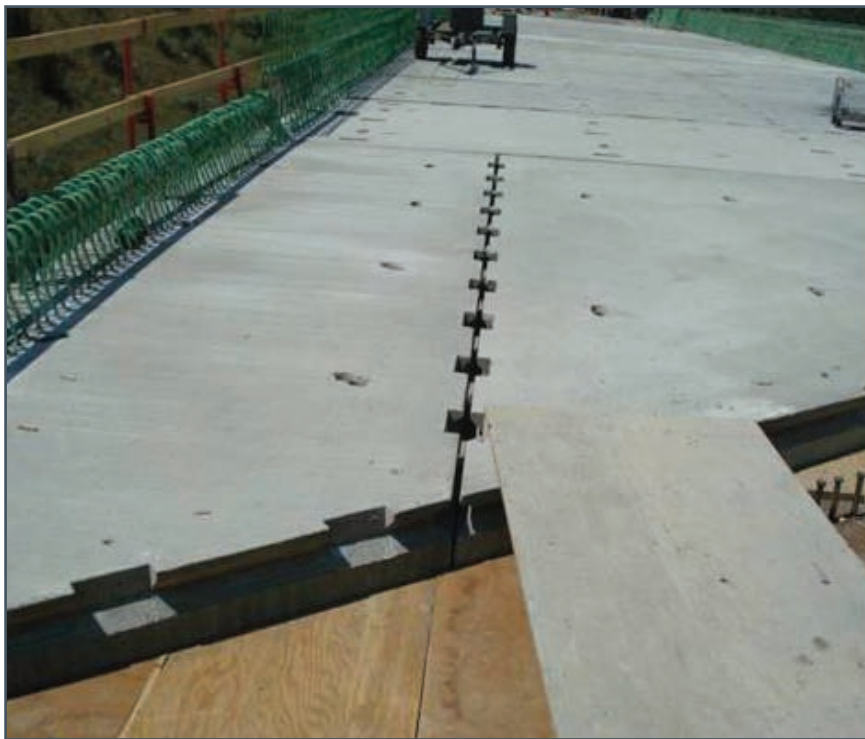


Figure 4.6 *Weber Canyon precast deck panel project*



Figure 4.7 *Weber Canyon precast deck panel project parapet*

The US 89 to SP 167 Weber Canyon Precast Deck Panel Project was considered successful. Some of the lessons learned included standardizing panel size and shape (to enhance the efficiency of truck transportation), standardizing blockout size and shape, and using a 14-day cure time.

UDOT is tracking unit costs for this work. Since 2007, precast bridge deck unit cost has shown a decrease as depicted in Figure 4.8. All costs per square foot include the price to install deck panels, such as lifting into place and placing nonshrink grout and shear stud blockouts. The costs per square foot were found by taking the volumetric fraction of the total precast deck panel cost (the cost that was strictly deck panels, parapets, and closure pours) and dividing that cost by the deck area.

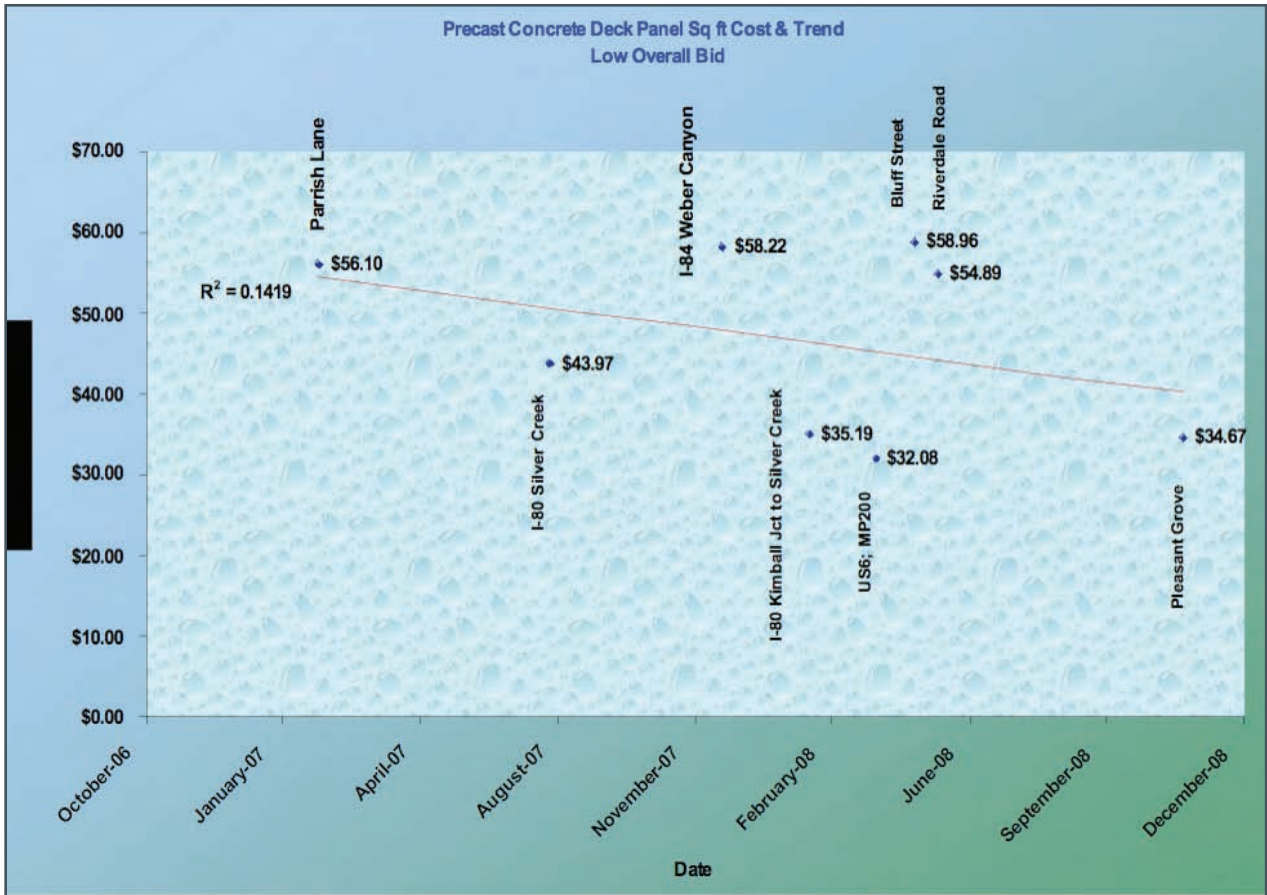


Figure 4.8 Unit costs of precast bridge deck panels over time

A second method used within the UDOT ABC program is the SPMT system. SPMTs have multiple axle lines of independently steered bogies. Each bogie has a 360-degree turning capacity. The lifting capacity is 25,000 pounds per axle. A pilot use of this system was the I-215 at 4500 South project. The bridge superstructure crossing I-215 was replaced in one weekend. The existing bridge superstructure had two spans. These bridge spans were removed and carried from the 4500 South location on an SPMT to a demolition area near the staging location for erecting the new bridge superstructure but on the other side of the 4500 southbound off ramp. The new single-span bridge structure was fabricated in the staging area between I-215 and the southbound off ramp at 4500 South (see Figure 4.9). The new bridge was moved into place with the SPMT, once the existing bridge was removed and relocated to the demolition area (see Figure 4.10). The SPMT contractor was Mammoet.



Figure 4.9 *Staging area for new superstructure*



Figure 4.10 *Moving existing superstructure to demolition area*

For more than 15 years, Mammoet personnel have pioneered the development and use of hydraulic skidding systems in North America. There are numerous constraints to cope with before determining the optimal solution when moving large and/or heavy objects. These constraints are assessed by an in-depth engineering effort. Stability of the load during movement is critical. To ensure this, extra support may be necessary. The initial and end configurations of the load have to be considered, and structural integrity has to be checked. In addition, a detailed time schedule should be developed to plan the operation within specified requirements.

The success of the I-215 project has led to the use of the SPMT on 12 more projects in 2008. One project is the I-80 State to 1300 East project. Seven bridge superstructures were built in a staging area (or a bridge farm, as described by the contractor) at 1300 East (see Figure 4.11). The dimensions of these structures varied up to 75 ft by 175 feet. The weight varied to as much as 3.0 million pounds. The maximum travel path was 1.5 miles. The

success of this project with respect to reducing the number of days to install the superstructures with the SPMT system is conveyed in Figure 4.12. In the first installation attempt at Highland, the transporter experienced web crippling in a carrier beam. After making corrections, the first bridge structure was then installed.



Figure 4.11 Bridge farm for the seven superstructures

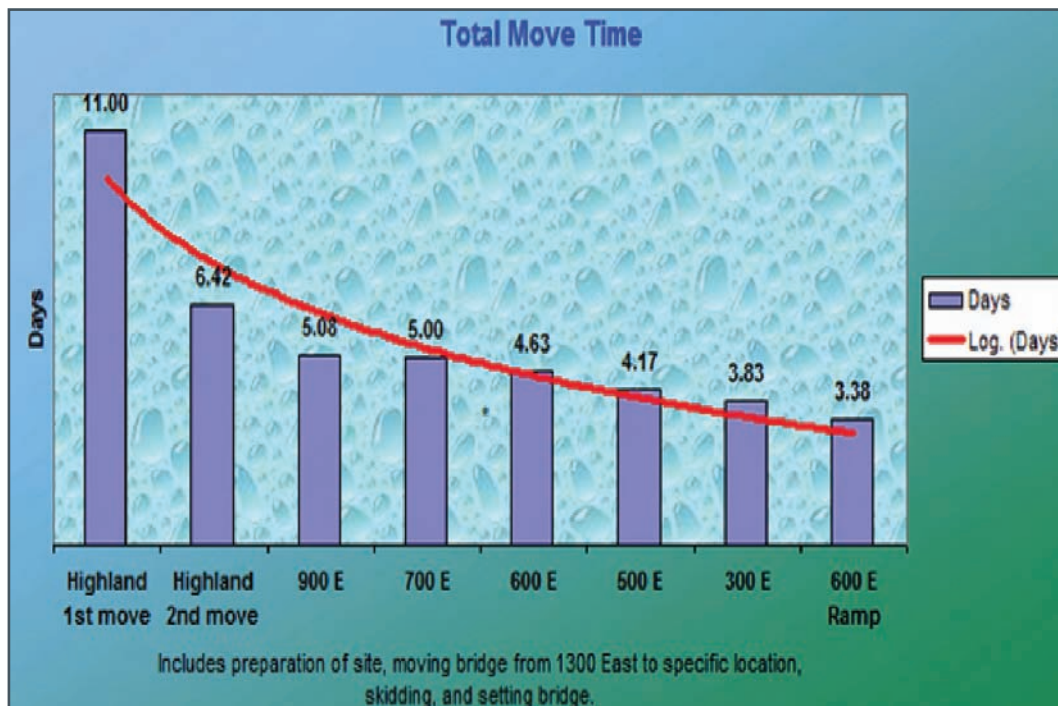


Figure 4.12 Time to move and set the bridge superstructures

The general value added by using SPMTs is illustrated in Figure 4.13, which shows the costs per bridge span moved. This figure clearly identifies the increasing value-added trend.

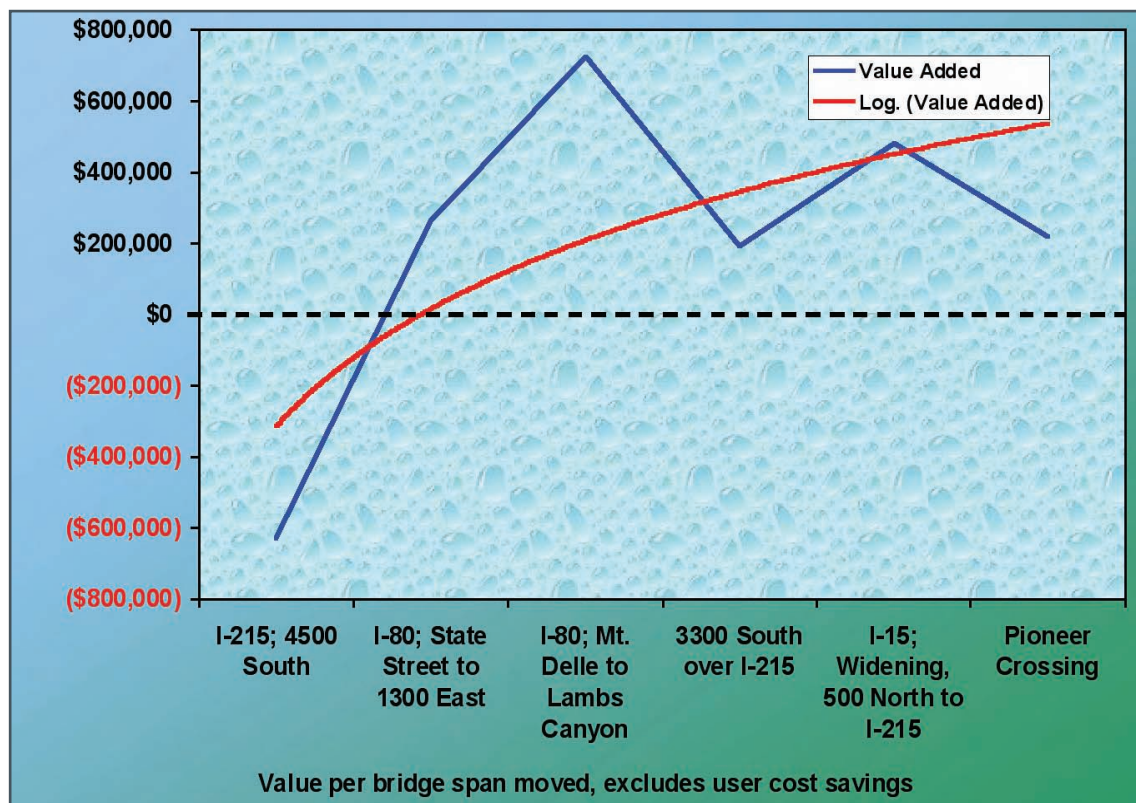


Figure 4.13 Value added by using SPMT

Value added has increased as contractors and UDOT have become more familiar with the SPMT process and construction methods. The two projects with the lowest value added were 4500 South, which was the first project of its kind in the state, and 3300 South, which was also a difficult move. Increased value was realized on the I-80 projects due to economy of scale (11 total bridges moved on both projects). The increased value depends on these factors:

- ❖ The difficulty of the move
- ❖ Savings in traffic control and maintenance of traffic (MOT)
- ❖ Increased quality and safety for the workers and the traveling public because the superstructure is built in a controlled environment separated from the road
- ❖ Future maintenance savings due to increased quality
- ❖ The ability to build multiple bridges in one location.

Contractor's Perspective of Accelerated Construction

Contractors provided their perspective on accelerated construction in general and specifically on accelerated construction as it relates to the program that UDOT is pursuing. This perspective is organized around general program issues, contracting strategies, planning and scheduling, and construction practices.

General Issues

During preconstruction phases, contractors have had, on occasion, an opportunity to provide input to UDOT on accelerated construction projects prior to delivery. This usually only occurs when solicited by UDOT and generally takes the form of providing comments or constructive criticism of an alternative already selected by UDOT. As an example, a recent scan tour invited contractors to observe the I-15 Payson, I-80 2300 East, and I-80 Echo Interchanges and to provide constructive criticism of concepts already chosen by UDOT, such as the precast deck panels on the Payson project and the use of SPMTs on the I-80 2300 East bridges and Echo bridges.

Contractors focus on many issues during the preconstruction phases of accelerated construction projects. Typically, they analyze schedule, MOT, lane rental, and construction sequence to determine the best and lowest price for the project. This price is often a combination of price, number of days (in an A+B format), and possibly lane rental. The winning bid may not actually be the lowest cost nor the best finished product, but the lowest combination of price, schedule, and user costs as established by the project parameters and the delivery and contracting approach.

The mandated accelerated construction practices can shift emphasis from traditional low-bid strategies wherein all contractors focus on achieving a low bid cost, to a nontraditional evaluation wherein the goal is to select the combination of MOT, schedule, price, and phasing to best meet the specified project criteria. UDOT recognizes that in the early stages of ABC strategy evaluation, there are trade-offs between quality and speed; with time and continued innovation, the gap between quality and speed will narrow.

An important aspect of time-sensitive projects is for contractors to assess contingency strategies to overcome potential delays due to unexpected events. Contingency strategies for accelerated construction projects differ from project to project. Some accelerated construction projects use very specialized equipment, such as SPMTs, where no replacement equipment is available, only replacement parts. The contractor can anticipate what parts might be needed, but it is a best-guess scenario. A contractor can arrange for a back-up crane on deck panel replacement projects, but the size and type of the required crane typically requires at least a full day to truck the crane to the project site and set it up. The choice then becomes one of having a spare crane on the project or making contingency MOT plans.

One of the biggest challenges with accelerated construction projects is that the timeframe for bridge or deck panel replacement continues to shrink as UDOT imposes tighter schedules based on past successes. The lesson here is that if this continues to happen, UDOT may experience a catastrophic failure one day that will dramatically reduce public support for accelerated construction and will require so much backup equipment for future projects that these projects will become unaffordable. Therefore, it is important the DOT and contractors properly evaluate risk in a partnered atmosphere.

Contracting Strategies

Contractors prefer DB contracts with fair A+B I/Ds that do not tie their hands with design and encourage early completion by rewarding ingenuity. Traditional DBB usually encumbers contractor efforts to think outside the box by establishing design parameters that may or may not be applicable.

Lane rental usually has only a punitive aspect to it. As such, lane rental does not find much favor with contractors, although it may be necessary as a contract element; when implemented correctly, it should provide an incentive. UDOT often uses lane rental, A+B, or both to arrive at an accelerated solution when the same result can be obtained by making it a contract requirement to either complete the project in a specified number of days or with a stated accelerated technique. Contractors' hands are tied when they attempt to arrive at the goal of an accelerated project by oblique penalties or time constraints. This may be the result when an acceleration strategy is not well thought out by a DOT.

Some contractors expressed a preference for DB for accelerated construction projects over CM/GC and DBB because the project path for CM/GC is usually already plotted by the time the contractor comes on board. However, this condition has been somewhat corrected by beginning the selection process earlier. CM/GC allows UDOT to start the selection process before any design is completed. UDOT can start before it knows everything about the project and involve the contractor in the design decision process. UDOT begins the CM/GC process earlier and selects a contractor more quickly than it does when it uses DB. DB averages 250 days for contractor selection, while selection using CM/GC can take only 70 days.

Traditional delivery imposes even tighter restrictions, and in the accelerated construction projects, the specifications are often too restrictive or even not applicable because UDOT may not have the same expertise the construction community has in establishing the design. The I-80 CM/GC project had the designer work for the contractor. The contractor is better able to influence the project schedule and include innovations in the final product.

Some quality problems are inherent with these acceleration construction practices, such as:

- ❖ Moving bridges with SPMTs can cause some deck cracking, especially when the decks are not designed to be lifted at the quarter points.
- ❖ Precast deck panels can have some issues with the connections and camber strips.

Some of these issues can be mitigated with lessons learned through design and others will always require a compromise. Allowing the projects to be a pure DB without having to adhere to certain parameters that are sacred cows within UDOT will allow greater flexibility in solving some of these problems; however, this will require a change of culture in the DOT.

Planning and Scheduling

On the I-80 State to 1300 East project, the contractor was allowed to make changes to the MOT plan, improving the original sequencing. These modifications reduced costs and addressed scope changes, including the following:

- | | |
|----------|--|
| Phase I. | Original sequencing included temporary widening of the median. The eastbound shoulder was permanently widened to accommodate a 3/2 altering direction traffic configuration. |
| Phase I | Original sequencing included temporary widening of all structures from 300 East to 900 East. Traffic requirements were met with only minor modifications to the 600 East Structure. |
| Phase I | Original sequencing included construction of two crossovers. Due to the scope change of adding the State Street structures, the planned west crossover was deleted and moved to an area further west, where the median was concrete and a temporary crossover was not required. |
| Phase II | Original sequencing included construction of superstructures on mainline I-80 adjacent to the existing bridges. The contractor's plan included the bridge farm (see Figure 4.11). All bridges were constructed in the same location, reducing costs, impacts to the public, and ROW takes. |

Construction Practices

Two issues that would help improve construction practices both relate to more time. More time for designers, ROW requisitions, and plan review by the contractors before officially starting construction would alleviate delays to the aggressively scheduled construction activities. More lead time for utilities is also a concern. The various infrastructure owners expressed opposition to being pressured into decisions and strict time constraints. UDOT pays penalties, overtime, and premium cost for labor associated with utility relocations under these circumstances.

There are limits to the tightening of project windows. Time must be scheduled for unforeseen incidents. Past successes do not dictate future constraints.

The contractor for the I-80, 3300 South, and 4500 South projects made these projects a priority and had a large pool of equipment and manpower enlisted as contingency. The contractor has also developed good relationships with other contractors and suppliers for backup resources in case of an emergency. Any contractor undertaking an accelerated construction project has to have this type of backup or contingency planning to be successful.

One strategy that was used on the SPMT project was a pre-move risk identification meeting where UDOT, contractors, suppliers, and design team members participated in a “what if” brainstorming session to identify potential risks and hazards; contingency plans were developed accordingly. This strategy helped team members unify to identify and manage potential risks.

One example of an emergency encountered was a design flaw in the transport beams that needed to be immediately replaced with a new set of beams. One of the suppliers worked around the clock until the new critical component of the bridge moving process had been delivered. The contractor’s crews then worked 20-hour days for 6 weeks to maintain the schedule.

Program Acceleration: The Future

UDOT has a vision for the future of project and program acceleration. This vision encompasses six areas:

- ❖ Continue to implement ABC programmatically
- ❖ Instrument bridges to aid in for future economical design
- ❖ Expand and improve the use of innovative contracting methods
- ❖ Continue to collect supporting data
- ❖ Expand into other accelerated construction methods
- ❖ Implement and promote practical design

As UDOT continues to implement ABC programmatically, an effort will be made to expand the use of the ABC decision flowchart (see Figure 4.4) and improve this decision process. Development of accelerated standards will continue. The training program will be expanded to include project managers as well as consultants and contractors in the principles, concepts, and practices related to acceleration. UDOT will continue to learn from other states and share its experiences in this area.

UDOT plans to instrument more bridges during moves to ensure that they perform as designed in terms of staying within elastic limits. This monitoring will aid in improving future designs by reducing deflection/cracking and should support preparation of more economical designs. The ultimate goal is to improve long-term performance.

Current alternative contracting methods need to be refined and improved, such as CM/GC and DB. Other contracting methods will continue to be explored, including, but not limited to, alliance, performance, task-order contracting, pooled DB, and public-private partnerships.

An aggressive measurement program is required to determine how UDOT is performing against the various initiatives supporting project and program acceleration. Some key areas for measurement include the cost impact due to economy of scale, SPMT costs, total project costs, public perception, time savings to construct, and the impact of acceleration on safety, quality, and durability. Performance measures will be established.

In the area of construction methods, UDOT intends to explore precast, prefabricated concrete pavements; geotechnical methods; and standardization and uniformity of appurtenances to achieve greater acceleration. In addition, innovation in lifting, transporting, and manufacturing equipment and innovative materials such as carbon fibers and plastics will be explored.

UDOT is evaluating the practical design concept used by the Missouri DOT. Work related to practical design will incorporate the following tenets:

- ❖ Expand on previous work, such as VE and context sensitivity, by formalizing and integrating these processes with other processes
- ❖ Practice real engineering; in other words, know when to deviate
- ❖ Avoid using a cookie cutter approach
- ❖ Implement common sense
- ❖ Think of what you want to achieve and not what you have always been doing
- ❖ Meet the goals of the project and do not compromise safety
- ❖ Do not design for more than you need
- ❖ Make economical decisions

Emergency Construction

UDOT has established an emergency on-call and response program. This program was started as a response to substantial problems responding to emergency issues, especially in the bridge area. Since 1999, more than 50 bridges were identified as needing some repair due to collision damage. Insurance recovery of funds due to damages was considered poor at best. Insurance money that was collected ended up in the UDOT general fund and was not specifically programmed to fix bridges. Communications between regions, planners, bridge engineers, and others were poor at best. UDOT had no process in place to respond to emergencies in an effective manner. Hiring contractors required UDOT to track the traditional process of planning, design, and advertising for construction – this process took years.

UDOT embarked on a new process to fix the response problem, initiating a Contractor-On-Call pool and process to select contractors quickly when emergency situations arise. UDOT had to obtain special procurement approval to select contractors from the pool during emergencies. Commission approval was not required for projects less than \$500,000. To ensure rapid response time, simplified plan packages were created to reduce waste. Contractors would submit proposed cost, approach to the work, details, and schedules similar to a DB project. UDOT created a bridge collision fund to ensure that funds were immediately available for the work. UDOT replenishes this fund with insurance recovery money. Further, UDOT created a communications hub with a Traffic Operations Center and an emergency rating system to determine the severity of the emergency. Training was also introduced to reinforce the process.

The contractor on-call pool is determined by an RFP that is advertised every two years. This allows contractors to become part of the on-call emergency pool; however, listing in the pool is not a guarantee of work. Project RFPs are prepared as needed. Actual selection for immediate emergencies (e.g., for shoring, closures, and demolition) is based on availability, location, and contractor technical expertise, with verbal approval from senior leadership. Selection for repairs uses proposals that consider cost, technical expertise, approach to work, and schedule.

The procurement approach for emergency projects was streamlined in relation to typical project procurement, which requires plans, advertisement, and selection based on low bid. Further, typical project procurement requires projects and funding to be approved through the annual STIP process. UDOT obtained approval from state procurement to use existing rules that allow UDOT senior leaders authority to immediately award work for emergencies up to \$500,000. Projects over \$500,000 must also obtain Commission approval. Finally, projects using federal funds must have FHWA approval or the appropriate agency’s approval.

Funding processes were also changed. A Bridge Emergency Recovery Fund was established to serve as a clearinghouse to distribute and collect money for emergencies. State funds are used to allow for greater flexibility. Emergency funding is immediately available. Insurance recovery money goes back to reimburse the account. Shortfalls are addressed in each year’s STIP process.

UDOT does not follow traditional processes for preparing plans, specifications, and estimates. Instead, it prepares a project Concept Report and RFP to convey scope, schedule, budget, and schedule constraints. Contractors submit proposals similar to DB that define cost, related experience, approach to work, and schedule. Contractors are selected by a team using a predetermined scoring method and are recommended for approval to senior leadership. Detail sheets are used in place of CADD drawings where possible. Standard specifications are used in place of special provisions as much as possible.

Communication is extremely important in initiating and sustaining the emergency response approach. UDOT created an emergency on-call list for distribution. Use of this list was tied to the severity of the event as depicted in a graph to aid in prioritizing response (see Figure 4.14). UDOT created a Ready-to-Go bridge information package in both hard copy format and electronic formation the UDOT Web site. UDOT also created a bridge emergency rating system that identifies four levels of severity to quickly communicate severity of the damage to a structure or roadway after an event. The Traffic Operations Center becomes the communication hub during bridge emergencies.

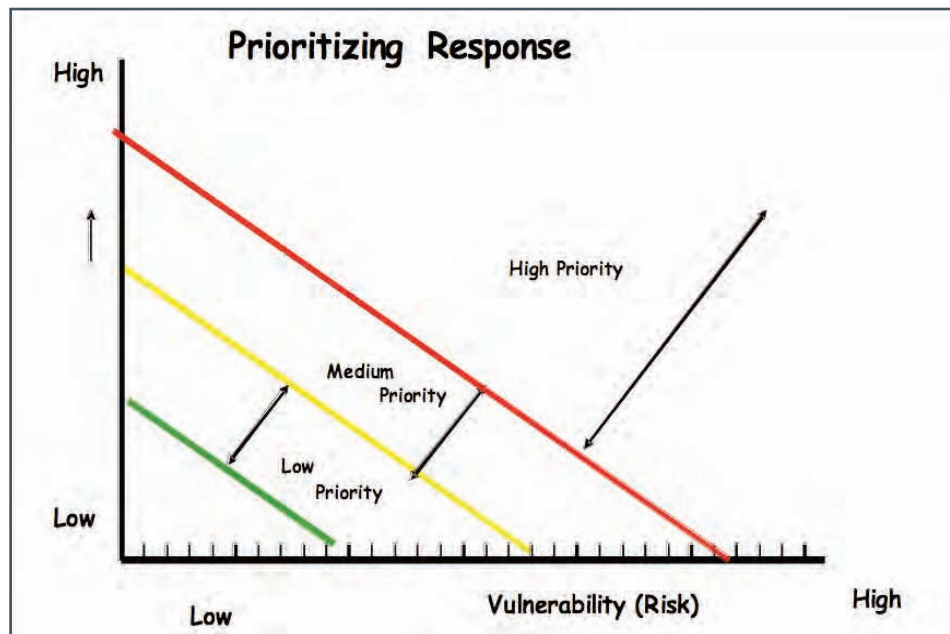


Figure 4.14 Priority response graphic

Two project successes under the emergency response program include the I-70 Floy Interchange and the 75-Year Flood in January 2007. The first emergency project resulted from a beam collision under the I-70 Floy Interchange where a drilling rig damaged a girder (see Figure 4.15). The region notified the Traffic Operations Center, which sent out the notice to the on-call list of contractors. Bridge inspectors were on site within hours. Within two days, a contractor was selected and removed the damaged girder (see Figure 4.16). The RFP was sent out to select a contractor to replace the girder within 30 days.



Figure 4.15 *I-70 Floy interchange damaged girder*

The second emergency project was the 75-Year Flood in January 2007 (see Figure 4.17). In anticipation of severe weather, National Weather Service information was linked to the Traffic Operations Center and the Structures Division to monitor changing weather patterns. Bridge inspectors were sent to the area as a precaution before the flood. Bridge inventories and scour-critical bridges were identified using an inspection database. UDOT created a triage system for inspection and updates of flooded bridges. Those bridges that were washed out were closed. UDOT used the contractor pool to replace several bridges within three to six months.



Figure 4.16 *Damaged girder removed*

The emergency contractor on-call process is working very well. The backlog of collision-damaged bridges has been eliminated. The response time to emergency situations has been reduced from months to hours. The response process has been expanded to cover structural issues such as deck blowouts and natural disasters. Lessons Learned reviews are completed after every event to identify what worked and what did not. Finally, funds for insurance claims are going directly to the problem.



Figure 4.17 *75-year-flood damage*

Keys to Successful Program Implementation

UDOT has a successful program to accelerate project delivery. Some keys to its success include:

- ❖ Gaining upper level management support – without this type of support the goals and objectives of program acceleration will not be achieved.
- ❖ Having enabling processes in place – UDOT had developed mature processes related to alternative project delivery, contracting, and partnering.
- ❖ Recognizing that implementing new processes requires cultural changes within the organization – a need is recognized and efforts are made to enlist the support of UDOT staff.
- ❖ Being willing to try new technologies – UDOT has aggressively implemented some new technologies in the area of bridge design and construction and has the patience to wait for the benefits of new technologies to outweigh the costs.
- ❖ Engaging industry in improvement processes – hearing the voice of industry through input, discussion, and collaboration is critical.
- ❖ Measuring performance is critical – UDOT is tracking the results from project and program acceleration and can point to successes.
- ❖ Learning from the past – changes to improve the acceleration process have been made based on past experiences.
- ❖ Maintaining a vision for the future – UDOT is constantly looking for new and better ways to accelerate project and program delivery.

UDOT has embarked on an ambitious program of project acceleration while focusing on lowest project cost. While UDOT has been successful thus far, it continues to look forward to find ways to further reduce delivery times while minimizing the impact on road users.

Observations Recommendations, and Implementation

Introduction

The scope of this scan was to identify construction operational and management practices that lead to successful accelerated construction and project delivery. The scan purposely focused on actual construction operations and management practices, together with contractual and incentive approaches that serve to encourage contractors to accelerate a project. The scan team evaluated practices in construction acceleration for their potential application by transportation agencies in response to an emergency and as a way to deliver these emergency projects with minimum disruption to highway users. Many DOTs have experience with accelerated projects in response to an emergency situation. For these types of projects, the entire delivery process, including design, is compressed. General project/program construction acceleration approaches were the second type of acceleration reviewed by the scan team. In this area, acceleration was a planned approach selected intentionally by the DOT. In this case, accelerated construction was both project-specific and program-focused.

The scan team studied eight emergency and seven planned accelerated projects. The DOTs visited included Florida, Alabama, Texas, Utah, and California. Many of the accelerated projects involved bridge construction, although several projects were primarily pavement construction-type work. Accelerated construction durations were as short as one month for the I-580 MacArthur Maze and as long as five years for the multiphase rebuilding of I 10 in Houston. Further, a program perspective on ABC was the focus of one DOT interviewed. Several bridge projects were presented by this DOT to illustrate a program approach to acceleration and the overall success of its program.

Observations

Transportation communities are quite similar in terms of the political, financial, and resource challenges that they face. However, some agencies are better at leveraging alternative contracting approaches and technical innovations. For every project examined, the primary element leading to success was a spirited partnership and collaboration between the DOT and contractor, together with a design supportive of accelerated construction. The following summary observations provide the fundamental findings of this study. These observations provide a context for the recommendations and implementation strategies that follow.

Partnering – People

People are the critical element in successfully accelerating a project. Formal partnering is a beginning, but partnering is more than meetings. To accelerate a project, all team members must be committed to resolving issues at the lowest level. There is also a need for openness to change after contract award, when more information becomes available. Every team member must exercise tremendous attention to detail and commit to an unselfish effort to ensure that there are no interruptions in moving the project forward. On many projects, the co-location of DOT and contractor personnel facilitated the partnering atmosphere, as suggested by one

participant, “You can’t go fast if you’re not co-located.”

Partnering keys include:

- ❖ **Align goals** – acceleration has a construction cost; establish incentives sufficient to cover increased cost plus risk
- ❖ **Delegate to the lowest level** – empower people to make immediate decisions
- ❖ **Make timely decisions** – have technical expertise on site or available at all times

Design – Material Availability and Logistics

A contractor must be able to procure the necessary project material in an expeditious manner. Designers must consider the availability of materials and the difficulties of moving and handling items such as bridge girders and precast elements. Logistics issues must be considered when selecting a design approach. Construction speed is achieved when the design allows repetition of activities. Designers should always review the standard specifications for opportunities to remove barriers to acceleration.

Planning – Detailed

A detailed execution plan is a critical component of the acceleration effort, and the plan must be updated regularly. Planning must include material suppliers and fabricators and construction equipment suppliers. Additionally, there must be contingency plans for all possible impediments. Speed is achieved by working concurrent activities. Plan to open multiple fronts to push construction activities with more crews and equipment. Prepare look-ahead plans at regular intervals.

Contracting Strategy – Aligned with Requirements

The contracting method needs to be aligned with the technical requirements of the project, including time, type of work, traffic, and project site conditions. Risks should be allocated to the party best able to manage those risks. Set an aggressive schedule with sufficient incentives and contractors will respond to the need for acceleration. The contract must clearly define work restrictions – schedule restrictions, vibration and noise restrictions, and any regulations that will limit work or logistics activities. The use of DB contracting will facilitate the introduction of innovation in design and construction. Further, the use of a new delivery approach, CM/GC, allows the agency to obtain critical constructability input from the contractor during the design phase. This approach fosters a cooperative relationship and can also promote innovation.

New Business Model – Serve the Public

Agencies should respond to the market of public desire. Going from accelerated construction to an accelerated project delivery attitude is possible if an agency thinks in terms of a systematic and holistic delivery approach. The lowest total project delivery cost should drive design and construction and include consideration of societal cost. When an agency involves the community and local and regulatory entities and achieves alignment with them regarding the project goals, construction acceleration will reduce the overall cost to the community. The “public can tolerate an awful lot if you tell them ahead of time and how long.”

Recommendations

The recommendations for accelerating construction specifically and project delivery in general are based upon the findings from studying various project and program activities covered during the scan. While there are some common themes that lead to successful acceleration, approaches to acceleration do differ based on whether the acceleration is in response to an emergency situation or whether it is a planned project delivery approach. Further, institutionalizing project acceleration can be accomplished at the program level. Recommendations are provided for each category of acceleration.

Emergency Projects

Some projects are accelerated due to unforeseen events. Typically, these events are related to an accident, natural disaster, or failure of a structure. These emergency projects are always accelerated to the highest possible degree. Any recommendations for emergency project acceleration would include processes related to the study observations, such as the use of partnering, detailed planning, contracting strategies, and material use. Several more specific recommendations for projects under emergency acceleration include:

- ❖ The agency should find contractors that have the resources to start immediately. The contractor must have the technical capability together with the ability to rapidly mobilize the necessary people and equipment, including backup machines. The contractor must also have the financial capacity and established trust with suppliers and fabricators so that critical material will move with only a phone call.
- ❖ In the case of an emergency project, communication can be difficult and distances can create time lags; therefore, ensure that the needed expertise is available on the project. Decisions are best made on the project site. On-site decisions are crucial to achieve accelerated project completion.
- ❖ Push decision making to the lowest possible level, including award and execution of the contract. If necessary, develop the agreement (contract) on site with the parties responsible for execution of the work. The ability of the local offices and their designers to make project decisions accelerates the work.
- ❖ Get a contract or agreement in place so the contractor(s) can go to work.
- ❖ The scope should be developed for the basic project need and then allow the contractor to develop solutions. Often design is controlled by available materials that can be drawn to the project site. Finally, there will be changes (scope growth) and the design must be able to easily accommodate the resulting adjustments.

Planned Project Acceleration

Many projects are delivered based on accelerating either construction only or both design and construction in order to minimize the impact of construction on road users, businesses, and the local community. Sometimes specific events may drive a project toward acceleration. These project requirements lead to planned acceleration for selected projects.

Certainly any recommendations would include processes related to the study observations, such as the use of partnering, detailed planning, and contracting strategies. Several more specific recommendations for planned acceleration include:

- ❖ The decision to accelerate construction should be made early in project development. That decision will focus the project team on finding ways to support the accelerated construction effort through detailed design and approaches to the acquisition of ROW and utility relocations.
- ❖ Partnering should be mandated for all accelerated projects and should include all project team members. In addition to DOT staff, the designer, contractor, subcontractor, and material supplier/fabricator personnel should participate. Depending on the project's complexity, local government agencies and utility companies should be involved. The partnering process should be implemented consistent with the characteristics of the project. For example, on projects where design and especially construction lasts a year or multiple years, partnering should be a continuous process.
- ❖ The benefits of delaying the construction start date or "Delayed Start/Procurement Period" should be carefully evaluated. This would allow the project team time to review and approve all shop drawings and facilitate the production of long-lead fabricated items. During this period the agency should seek ways to

encourage contractors to place more effort in upfront planning. The contractors may have to work multiple fronts and extended workweeks (e.g., 24/7) to meet specified completion dates.

- ❖ Procedures and criteria for the use of incentives/disincentives should be developed. I/D contract provisions must motivate the contractor to accelerate the work. When using the I/D contracting approach, the agency must have decision makers at the site and delegate decision making to the lowest staff level. A sufficient incentive should be added to shorten project delivery time significantly.

Program Project Acceleration

Some agencies are focusing on program-level approaches to accelerating project delivery. The program approach tends to be comprehensive and in many DOTs is related to bridge construction. Key recommendations related to developing a successful program for accelerating projects include:

- ❖ The agency needs a champion of project acceleration who has the support of upper level management. The focus at this level within the agency should be on setting the vision, goals, and objectives of project acceleration at the program level. Policies and procedures should be developed to implement the vision, goals, and objectives. The vision should constantly promote looking for new and better ways to accelerate projects and, therefore, program delivery.
- ❖ The agency should have enabling processes in place that are mature and can support project acceleration. There are three critical enabling process areas:
 - **Partnering** – a process that is standard across the agency. Partnering can be formal (where facilitation is used) or informal. All project participants should be involved in the partnering process, and that process should be used for every project.
 - **Alternative project delivery and contracting methods** – the agency should have a toolbox of project delivery approaches and contract methods that have been proven to successfully support acceleration. The agency should recognize that these approaches and methods have to fit the requirements and conditions of the project.
 - **Cultural change** – the agency must recognize and plan for changes as new policies and procedures are implemented to support project acceleration.
- ❖ The agency should be willing to try new technologies. For example, there are new technologies in the area of bridge design and construction to accelerate projects. While new technologies are costly when first implemented, the cost associated with the technology should decrease over time. Project durations should also decrease over time.
- ❖ The agency should consider total project costs, including capital investment, road user costs, and societal costs when implementing an accelerated program of projects. The cost and time impacts of acceleration should be covered in budgets when projects are programmed early in the project development cycle.
- ❖ The construction industry must be engaged when improvement processes are institutionalized at the program level. Hearing the voice of industry through input, discussion, and collaboration is critical.
- ❖ Performance measurement is another critical component of acceleration activities. Tracking the results gained from both project and program acceleration should point to successes but also identify areas where there are opportunities for further improvement.
- ❖ The agency should learn from the past. Tracking lessons learned will aid in making changes based on past experiences to improve the acceleration process.

Implementation

The communication of successful processes and methods used to accelerate construction of the projects studied will aid agencies faced with the need to rapidly replace vital infrastructure in an emergency situation or as a planned approach with minimum impact to the public. The scan team firmly believes widespread distribution of the scan findings can best be achieved through a series of presentations targeted for transportation industry audiences. Therefore, the team has formulated a schedule of technical presentations at AASHTO, FHWA, and Transportation Research Board meetings and other conferences. In support of these presentations, the team would like to encourage the publication of both a flyer and technical data report that summarizes the findings and recommendations of the scan report. The scan team formulated the implementation activities shown in Table 5.1.

Activity	When
Summary Report (50 page maximum)	August 2009
Flyer (based on the executive summary)	August 2009
Articles in <i>Focus</i> and <i>Public Roads</i>	To be determined
Activity	When
AASHTO Subcommittee on Construction (SOC)	4 Aug. 2009 Chicago, IL
Southeastern Association of State Highway and Transportation Officials (SASHTO)	28 Aug.-2 Sept. 2009 Biloxi, MS
American Road & Transportation Builders Association	6-9 Oct. 2009 Charleston, SC
AASHTO Standing Committee on Highways (SCOH)	22-27 Oct. 2009 Palm Desert, CA
Transportation Research Board, Annual Meeting	10-14 Jan. 2010 Washington, DC
Associated General Contractors (AGC) of America, Highway & Transportation Div.	Spring 2010

Figure 5.1 Accelerated construction implementation activities

The team also encourages the Research Steering Committee of SOC to continue the effort of collecting case study information on accelerated construction projects from its membership.

Conclusions

The scan team members strongly recommend that the innovative ideas described in this report be considered and evaluated for use. The true value of this information will only be realized when these recommendations are shared, evaluated, and, as appropriate, put into place.

Accelerated construction requires much more upfront planning. The DOT must research available materials and the marketplace before developing a project design. Contractors seeking to accelerate their work must develop their plans to a much greater level of detail due to schedule constraints and overall contracting risk.

The foundation of accelerating project construction is a design based on materials that can be moved quickly to the project site. In the case of emergency projects, a conservative design is suggested as protection against problems that can be caused by project unknowns, and finally, the designer must maintain flexibility in the design approach.

Accelerated construction is about minimizing time impacts to the public and the impact on overall cost. When goals are aligned and a partnering atmosphere is created, all team members view the accelerated work as an opportunity to demonstrate excellence. The owner of one company that delivered an accelerated project ahead of schedule stated, "It's not about making a huge profit. It's about pride and reputation." The Chief Engineer for the DOT affirmed that opinion.



APPENDIX A: SCAN TEAM BIOGRAPHICAL INFORMATION

APPENDIX A

Scan Team Biographical Information

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Brian Blanchard (AASHTO Co-Chair) is the Chief Engineer of the Florida Department of Transportation (FDOT). He has more than 26 years' experience in structural design, roadway design, and construction management. Blanchard is the former FDOT Director of Construction, the former State Roadway Design Engineer; prior to that, he was the District Design Engineer for the panhandle of Florida. He is a graduate of Louisiana State University and is a licensed professional engineer in Florida and Louisiana. Blanchard is a member of the AASHTO Standing Committee on Highways and Subcommittee on Construction

Thomas Bohuslav (AASHTO Co-Chair) is the director of the Construction Division of the Texas Department of Transportation (TxDOT). He is responsible for developing and issuing statewide policy and procedures for all construction contracting, including accelerated construction. Additionally, he ensures that all materials used in construction and maintenance of TxDOT highways are uniformly tested for quality. Bohuslav also oversees TxDOT's responsibilities for pavement management and design. He has been with TxDOT for more than 28 years. He earned his Bachelor of Science degree in Civil Engineering from Texas Tech University in 1982 and became a licensed professional engineer in Texas in 1988. He serves as the Vice Chair of the AASHTO Subcommittee on Construction. He was a member of the 2004 International Construction Management Scan.

Christopher J. Schneider (FHWA Co-Chair) serves as Construction & Systems Preservation Engineer in the Office of Asset Management for the Federal Highway Administration (FHWA) in Washington, DC. He is responsible for program areas involved with improving construction quality and management. Schneider's program areas include Performance Contracting and Specifications, Innovations and New Technologies, and the Accelerated Construction Technology Transfer (ACTT) program. Schneider previously worked with the FHWA's Eastern Federal Lands Highway Division (EFLHD) for 18 years. Prior to serving as the FLH Road Inventory Program Coordinator, he spent 10 years in the EFLHD Construction office having served as Project Engineer, Construction Quality Assurance Engineer, and Construction Operations Engineer. A graduate of Mississippi State University with a Bachelor of Science degree in Civil Engineering, Schneider began his career with FHWA in 1987. He serves as a panel member for current NCHRP Project 20-73, "Accelerating Transportation Project and Program Delivery: Conception to Completion."

Stuart D. Anderson (Co-Subject Matter Expert) is a Professor in the Zachry Department of Civil Engineering at Texas A&M University. He is also a Program Manager of Construction for the Texas Transportation Institute (TTI) in the Constructed Facilities Division of TTI. Anderson's research includes work in the area of accelerated construction and specifically studying processes to aid in acceleration both overall project delivery as well as construction delivery. He was the Principal Investigator on a FHWA research project on "Traffic Management Studies for High Volume Roadways." Previously, Anderson was the Principal Investigator on NCHRP Project 10-50A "Guidelines for Selecting Strategies for Rehabilitating Rigid Pavements Subjected to High-Traffic Volumes" and NCHRP Project 10-49, "Improved Contracting Methods for Highway Construction Projects." He holds a Bachelor of Science degree from the University of Washington in Building Construction, a Master of Science degree from the University of Illinois at Urbana in Civil Engineering with emphasis on Construction and Geotechnical Engineering, and a PhD degree from the University of Texas at Austin in Civil Engineering with emphasis on Construction Engineering and Project Management. He is a licensed professional engineer. Anderson is the Chair of Transportation Research Board (TRB) Construction Management Committee, a member of the TRB Project Delivery Methods Committee, a member of the American Society of Civil Engineers (ASCE) Construction Institute, and a member of the Project Management Institute.

Clifford J. Schexnayder (Co-Subject Matter Expert) is an Eminent Scholar Emeritus at the Del E. Webb School of Construction at Arizona State University. During his career, Schexnayder has worked as a professional engineer on major construction projects across the United States and dedicated himself to teaching construction courses at universities around the world. He has 15 years of construction contractor experience as a field engineer, estimator, and corporate chief engineer. In the Army Reserve, his last assignment was in

the Office of the Chief of Engineers, Washington, DC, as Executive Director, Directorate of Military Programs. He retired from the Army in March 1998 with the rank of Colonel. He holds a Ph.D. in Construction Engineering and Management from Purdue University and is a licensed professional engineer. He served on the Executive Committee of the ASCE Construction Division (1986–1992) and as Chairman of the TRB Construction Section (1997–2003). Since May 2006, Schexnayder has served on the Renewal Technical Coordinating Committee for the Strategic Highway Safety Program (SHRP 2). He is author of the Army Field Manual Earthmoving Operations, FM 5-434, and the McGraw-Hill textbooks *Construction Planning, Equipment & Methods* and *Construction Management Fundamentals*.

Steven DeWitt is the Chief Engineer for the North Carolina Turnpike Authority (NCTA). He is responsible for all engineering activities relating to the planning, design and construction of NCTA's toll road projects. He is also the lead on North Carolina's first Public Private Partnership procurement for transportation infrastructure. DeWitt previously served as North Carolina Department of Transportation's (NCDOT) Director of Construction. DeWitt's 22-year career with NCDOT included a variety of positions in construction management, contract procurement and other related activities. He was the lead in creating the North Carolina Department of Transportation's Design-Build program with a focus on accelerating project delivery. DeWitt is a graduate of the University of North Carolina at Charlotte with a Bachelor of Science degree in Civil Engineering and is a licensed professional engineer in North Carolina. DeWitt served as Chairman of the TRB Construction Section, serves as Chairman of the TRB Project Delivery Committee, and is a member of the TRB Construction Management Committee (and Past Chairman). He served for over 13 years as a member of the AASHTO Subcommittee on Construction. He serves as Co-Chairman of the FHWA/AASHTO Expert Technical Group on Construction Management. DeWitt was a co-chair of the 2004 International Scan on Construction Management Practices.

George T. Raymond is the State Construction Engineer for the Oklahoma Department of Transportation (ODOT) and has served in that capacity for eight years. He is a 23-year veteran of ODOT and has spent his entire career in highway construction, including six years as a Resident Engineer. In 2002, he contributed to the successful reconstruction of I 40 at the Arkansas River, which was closed for 65 days after a barge knocked down a third of the bridge. Raymond received a Bachelor of Science degree in Civil Engineering from the University of Oklahoma and is a licensed professional engineer. He is a member of the AASHTO Subcommittee on Construction (SOC) for the past 10 years and is currently the Chair of the SOC's Computer & Technology Technical Section.

Richard H. Sheffield is the Assistant Chief Engineer – Operations for the Mississippi Department of Transportation, with oversight responsibilities of Contract Administration, Materials, and Research Divisions. Sheffield was appointed to the position in October 2005, right after Hurricane Katrina demolished the Mississippi Gulf Coast. In the past three years, he has been heavily involved in development of two major fast-tracked design-build bridge projects on the Gulf Coast, in addition to tracking all Local Public Agency Emergency Repair projects for compliance with federal regulations (from design through construction and project closeout). He is also involved with leading the team that is developing all the contracts and specifications for Mississippi's first public-private partnership (P3) project, to be awarded in early 2009. Sheffield spent the first 15 years of his career as a geotechnical engineer and the next nine years as a materials engineer, specializing in hot mix asphalt design and construction and soil stabilization techniques. Sheffield received a Bachelor of Science degree from Mississippi State University in 1981. He is a licensed professional engineer.



APPENDIX B: SCAN TEAM CONTACT INFORMATION

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Scan Team Contact Information

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APPENDIX F: AMPLIFYING QUESTIONS

Amplifying Questions

Questionnaire for Departments of Transportation: Planned Accelerated Construction Projects

These amplifying questions establish a reference framework for activities that should be performed to capture the required information during the scan. The scan will focus on actual construction operations and management practices used to accelerate construction. This protocol seeks to ensure that all supporting project information is collected, interviews do not digress excessively, and visits to the construction sites are productive. Two separate areas of acceleration are studied in this scan. The first area is general project/program construction acceleration approaches. In this area, acceleration is a planned approach selected intentionally by the Department of Transportation (DOT). The second area of acceleration is related to emergency projects. This type of accelerated project is usually in response to an emergency situation. Two separate sets of questions are proposed, one for Department of Transportations and one for contractors.

General Program Level Issues

- ❖ At what point in the project development process is the decision made to use an accelerated construction approach?
- ❖ Why is accelerated construction implemented on projects?
- ❖ Who are involved in developing the accelerated construction approach and why (construction contractor, in-house construction, traffic management, safety and environmental, maintenance and operations, project management, design)?
- ❖ What issues and topics are addressed and analyzed during development of the accelerated construction approach (traffic management, traffic within construction zone, phasing and construction sequencing)?
- ❖ Are accelerated construction approaches successful? If so, why and if not please provide reasons why they are not successful.

Contracting Administration

Pre-Construction Questions

- ❖ What project delivery and contracting strategies were implemented to enable acceleration for the project (traditional, A+B, lane rental, design-build, other)? What other project delivery and contracting strategies were considered to accelerate the project? Why were these other delivery and contract strategies not used?
- ❖ What were the critical issues addressed during the contracting strategy selection process? How did the DOT view their relative importance (schedule, deadlines, cost, traffic, cash flow)?
- ❖ Were Incentives/Disincentives (I/D) clauses used? Why?
- ❖ What was the I/D structure?

APPENDIX F: AMPLIFYING QUESTIONS

- Was the incentive capped?
- How was the cap value established?
- Was there a limit in the amount of disincentives?
- How was the disincentive amount established?
- ❖ What were the results regarding the use of I/Ds? Did the contractor receive the incentive? If the contractor did receive an incentive; what was the percentage of the incentive amount compared to the maximum amount?
- ❖ What processes were allow in the contract for contractor suggestions (e.g., Value Engineering clauses, Alternative Technical Concepts, etc.)?
- ❖ Did the contractor provide any feedback and/or suggestions? Where these suggestions incorporated? Why or why not?
- ❖ What were the estimated savings due to the suggestions?
- ❖ Was formal Partnering included in the project?
- ❖ Who were included in the partnering program?
- ❖ What were the expected benefits from partnering in the project? Where these benefits fulfilled? Why or why not?

Planning and Scheduling

Pre-Construction Questions

- ❖ Was there an established work schedule dictated by the DOT for the project, work times, etc (continuous day work, night work, weekends)?
 - What was the process for selecting this work schedule (traffic, deadlines)? Did issues external to construction (e.g. governmental regulations, public concerns) drive the work schedule?
 - Where there innovative approaches to addressing environmental, social, or other constraints, such as temperature specifications for paving, noise limitations restricting work hours, etc?
- ❖ Did your DOT provide flexibility with the DOT's standard specifications?
- ❖ Did the DOT specify a phasing sequence for the project? If yes, was the contractor allowed to modify the plan?
- ❖ What factors affected the phasing sequence decision process (traffic restrictions, material availability, human resources, etc)?

Construction Practices – Cost, Time, Quality

The Plan: Pre-Construction Questions

- ❖ What were the primary construction methods and techniques selected for the project? Why were they selected? What other methods were contemplated and why were they discarded?
- ❖ What is the cost of the accelerated project compared to the estimated cost of a project following a normal construction process?

- ❖ What practices were followed to ensure that good quality was achieved?
- ❖ Because the project followed an accelerated construction process were innovative testing processes used?
- ❖ What other accelerated processes could have been used and why were they discarded?
- ❖ Did the traffic management plan have flexibility so that it supported the accelerated construction methods?
- ❖ What guided the selection of the pavement or bridge type (time restrictions, available area, strength, temperature, etc)? What were the results expected from the use of this pavement or bridge type?

What Did Happen: Post-Construction Questions

- ❖ How did the accelerated construction methods and techniques affect traffic passing through the work zone?
- ❖ Should the DOT have specified different accelerated construction methods and techniques (including selection or a different design) for the project? Which and why? What would have been the expected results?
- ❖ What were the main problems encountered during the accelerated construction process? What were the impacts resulting from these problems (time and cost impacts, traffic delays, affected areas)?
- ❖ What were the primary project situations (limited work zone, availability of a staging area, etc.) that facilitated the construction process? Were these situations understood before the project was bid? If they were planned, how was the information transmitted to the bidders and did the contractor use the situation as expected?
- ❖ What were the processes for corrective actions to mitigate the impacts of problems that occurred during construction?
- ❖ Could the problems have been foreseen? If so, how?
- ❖ Could the design have been changed to better support accelerated construction? If so, are there different design principles that should guide a DOTs approach to accelerated construction?

Traffic Control and Management

Pre-Construction Questions:

- ❖ At what phase in the planning process were public expectations determined and considered in the design of the traffic management plan to support the accelerated construction strategy?
- ❖ How were traffic management strategies selected to address the traveling public's needs during the accelerated construction project?
- ❖ Were analytical techniques used to evaluate traffic management strategies for the accelerated construction project? Was a simulation model used to determine impacts on motorists of alternative traffic management strategies?
- ❖ Post-Construction Questions:
- ❖ Did the traffic management strategies selected achieve their objectives in support of accelerated construction? Any data to confirm your conclusion?
- ❖ What other traffic management strategies might have been considered to support the accelerated construction?

Questionnaire for Departments of Transportation: Emergency Construction Projects

General Issues

Pre-Letting Questions

- ❖ Who were involved in developing the emergency construction approach and why (construction contractor, in-house construction, traffic management, safety and environmental, maintenance and operations, project management, design)?
- ❖ What issues and topics were addressed and analyzed during development of the emergency construction approach (traffic management, traffic within construction zone, phasing and construction sequencing)?
- ❖ Was the emergency construction approach successful? If so, why and if not please provide examples where you were not successful.

Contracting Administration

Pre-Construction Questions

- ❖ What project delivery and contracting strategies were implemented to enable emergency construction for this project (traditional, A+B, lane rental, design-build, other)? What other project delivery and contracting strategies were considered for the emergency project? Why they were not used?
- ❖ What were the critical issues addressed during the selection process of the contracting strategy?
- ❖ Were Incentives/Disincentives (I/D) clauses used?
- ❖ What was the I/D structure?
 - Was the incentive capped?
 - How was the cap value established?
 - Was there a limit in the amount of disincentives?
 - How was the disincentive amount established?
- ❖ What were the results regarding the use of I/Ds? If the contractor did receive an incentive; what was the percentage of the incentive amount compared to the maximum amount?
- ❖ What processes were allow in the contract for contractor suggestions (e.g. Value Engineering clauses, Alternate Technical Concept, etc.)?
- ❖ Did the contractor provide any feedback and/or suggestions? Where these suggestions incorporated? Why or why not?
- ❖ What were the estimated savings due to the suggestions?

Planning and Scheduling

Pre-Construction Questions

- ❖ Was there an established work schedule dictated by the DOT for the project, work times, etc (continuous day work, night work, weekends)? What affected the selection process for selecting this work schedule (traffic, deadlines)? Where there innovative approaches to addressing environmental, social, or other

constraints, such as temperature specifications for paving, noise limitations restricting work hours, etc?

- ❖ Did your agency provide flexibility with the agency's standard specifications?
- ❖ Did you specify a phasing sequence plan for the project? If yes, was the contractor allowed to modify the plan?
- ❖ What factors affected the phasing sequence decision process (traffic restrictions, material availability, human resources, etc)?

Construction Practices – Cost, Time, Quality

The Plan: Pre-Construction Questions

- ❖ What practices did you follow to ensure you achieved good quality?
- ❖ Were innovative testing processes used to support the emergency construction process?
- ❖ Did the traffic management plan have flexibility so that it supported the accelerated construction methods?
- ❖ What were the primary construction methods and techniques selected for this project? Why were they selected? What other methods were contemplated and why were they discarded?

What Did Happen: Post-Construction Questions

- ❖ How did the accelerated construction methods and techniques affect traffic passing through the work zone for the emergency project?
- ❖ Should the DOT have specified different construction methods and techniques (including selection or a different design) for the emergency project? Which and why? What would have been the expected results?
- ❖ What were the main problems encountered during the emergency construction process? What were the impacts resulting from these problems (time and cost impacts, traffic delays, affected areas)?
- ❖ What were the primary project situations (limited work zone, availability of a staging area, etc.) that facilitated the construction process? Were these situations understood before the project was bid? If they were planned, how was the information transmitted to the bidders and did the contractor use the situation as expected?
- ❖ What was the process for taking corrective actions to mitigate the impact of the problems encountered during construction?
- ❖ Could these problems have been avoided? If so, how?
- ❖ Could the design have been changed to better support accelerated construction? If so, what changes could have been made in the design?

Traffic Control and Management

Pre-Construction Questions

- ❖ How were traffic management strategies selected to address the traveling public's needs during the emergency construction project?
- ❖ Were analytical techniques used to evaluate traffic management strategies for the emergency construction project? Was a simulation model used to determine impacts on motorists of alternative traffic management strategies?

Post-Construction Questions

- ❖ Did the traffic management strategies selected achieve their objectives in support of emergency construction? Any data to confirm this?
- ❖ What other traffic management strategies might have been considered to support emergency construction?

Questionnaire for Contractors: Planned Accelerated Construction Projects

These amplifying questions establish a reference framework for activities that should be performed to capture the required information during the scan. The scan will focus on actual construction operations and management practices used to accelerate construction. This protocol seeks to ensure that all supporting project information is collected, interviews do not digress excessively. Two separate areas of acceleration are studied in this scan. The first area is general project/program construction acceleration approaches. In this area, acceleration is a planned approach selected intentionally by the Department of Transportation (DOT). The second area of acceleration is related to emergency projects. This type of accelerated project is usually in response to an emergency situation.

General Program Level Issues

- ❖ Does the contracting industry (individual companies or through organizations such as the AGC) typically provide input into the pre-construction phases for accelerated construction projects? If so, do contractors submit ideas for accelerating construction or do contractors only provide comments on DOT proposals regarding construction acceleration approaches?
- ❖ What issues and topics do contractors address and analyze when involved in the pre-construction phases of accelerated projects (e.g., traffic management, construction zone traffic, phasing and construction sequencing)?
- ❖ What are the principal back-up and emergency strategies that contractors consider for accelerated construction projects (e.g., additional key equipment, back-up concrete plant, back-up energy supply unit, back-up extra work schedules, DOT organization prepared to make decisions 24-7.)? Under what circumstances are back-up and emergency strategies typically implemented?

Contracting Strategies

- ❖ What project delivery/contracting approaches (traditional, A+B, lane rental, design-build) do contractors prefer for these types of projects. Can you provide definitive reasons for contractor preferences?
- ❖ If an incentive/disincentive (I/D) clause is used in an accelerated construction project contract, what I/D amounts are considered appropriate for motivating the contractor to accelerated construction? What should DOTs consider when setting I/D amounts?
- ❖ How do project delivery/contracting approaches impact the contractor's project schedule and plan? Resource utilization approach? Material staging design?
- ❖ Do contractors have quality problems due to the project delivery/contracting approach used to accelerate construction? Explain. Could these problems be mitigated using a different project delivery/contracting approach to accelerate construction? Which ones?
- ❖ For projects your company has experience with, would a different project delivery/contracting approach have been better suited for the project and why?

Planning and Scheduling

Pre-Construction Questions

- ❖ Considering your experiences, did the agency provide the contractor a suggested sequence of construction for the accelerated construction project? What was your assessment of the suggested sequence of construction?
- ❖ What critical constraints and restriction are contemplated when your company develops its schedule and plan for an accelerated construction project (traffic volumes, staging areas, haul routes and access areas)?
- ❖ What affected your phasing sequence decision process for planning accelerated construction (e.g., time, material handling, and allowance for work flexibility)?
- ❖ Was your accelerated construction plan based on the DOT suggested sequence of construction? If not, what were the main differences?

Post-Construction Questions

- ❖ What work schedule did you employ for the accelerated construction projects (continuous day work, night work, and weekends)? Are your schedules different from the ones proposed by the agency? If so, why and how?
- ❖ Was the DOT phasing sequence for the accelerated construction project respected? If not, why?
- ❖ What project phasing flexibility could have been allowed by the DOT to improve the construction acceleration effort? What issues would have to be addressed to prepare such an accelerated construction plan prior to the start of construction?

Construction Practices

Pre-Construction Questions

- ❖ What are the primary factors affecting the planned production rates to support accelerated construction (e.g., phasing, traffic, day-work schedule, methods, equipment, work zone, staging areas)? How are these factors influenced by DOT specifications? If so, what are the impacts on planned production rates?
- ❖ With respect to following, what type of innovations are most important to contractors for accelerating a project:
 - Material storage location
 - Material access to site (including plants for concrete and asphalt)
 - Materials placed
 - Construction methods and techniques
 - Technology approaches
 - Construction equipment to support the accelerated construction effort
 - Processes (planning, scheduling control, production rate estimation, etc)
- ❖ From your experience do the agencies specify the methods and techniques to be followed in their accelerated projects? Is the contractor allowed to participate in the decision making process regarding the selection of methods and techniques?

APPENDIX F: AMPLIFYING QUESTIONS

- ❖ To what extent does project design affect the selection of methods and techniques to support accelerated construction? Is the contractor typically allowed to propose alternate designs?
- ❖ What were the principal back-up and emergency strategies that contractors considered for accelerated construction projects (e.g., additional key equipment, back-up concrete plant, back-up energy supply unit, back-up extra work schedules)? Under what circumstances are these back-up and emergency strategies implemented on your projects?

Post-Construction Questions

- ❖ Have your accelerated construction projects been successful? Why? What were the main contributing factors to success (e.g., planning, innovative methods, equipment, contract flexibility, etc)?
- ❖ What are the types of constructibility related problems typically encountered during an accelerated construction project?
- ❖ What methods and techniques do contractors employ to gain efficiency during accelerated construction?
- ❖ What are the main problems encountered while accelerating construction? What are the impacts resulting from these problems (e.g., time and cost impacts, traffic delays, affected areas)?
- ❖ What are the corrective actions taken to mitigate the impacts of these problems?
- ❖ Could these problems have been avoided? If so, how?
- ❖ From your experience, would you as a contractor now use different methods and techniques for the accelerated construction projects? Which ones and why would a contractor use them?

Questionnaire for Contractors: Emergency Construction Projects

Contracting Strategies

- ❖ What project delivery/contracting approaches would the contractors preferred for an **emergency**-accelerated project when there is less than a week to submit a price?
- ❖ If an incentive/disincentive (I/D) clause was used for the **emergency** construction project, was the amount of the I/D appropriate to motivate the contractor to accelerated construction?
- ❖ Will the contracting approach for an **emergency**-accelerated project cause quality problems? If so can the problems be mitigated by using a different project delivery/contracting approach?

Planning and Scheduling

- ❖ Considering your experiences should the agency provide the contractor a suggested sequence of construction for a **emergency**-accelerated construction project?
- ❖ What critical constraints and restriction are contemplated when developing the schedule and plan for an **emergency**-accelerated construction project (traffic volumes, staging areas, haul routes and access areas)?
- ❖ For **emergency**-accelerated construction projects that you have executed was your plan based on the DOT suggested sequence of construction? If not, what were the main differences and would the DOT work with you to modify their plan? Do you believe this issue sequence control is important to success?
- ❖ What drives your decisions about the work schedule for an **emergency**-accelerated project (continuous day

work, night work, or weekends)? Is the limited time frame for accomplishing the work the main or only factor driving the scheduled work hours?

- ❖ What critical issues need to be addressed with the DOT prior to the start of construction?
- ❖ What critical issues with subcontractors and/or suppliers must a prime contractor address prior to the start of an **emergency**-accelerated construction project?

Construction Practices

- ❖ What are the principal back-up and **emergency** strategies that contractors consider for emergency-accelerated construction projects (e.g., additional key equipment, back-up concrete plant, back-up energy supply unit, back-up extra work schedules)? Under what circumstances are back-up and emergency strategies typically implemented?
- ❖ What were the primary factors affecting an emergency-accelerated project's production rates (e.g., phasing, traffic, day-work schedule, methods, equipment, time for testing and quality control, work zone, staging areas)?
- ❖ Do the standard DOT specifications cause problems and/or delay the work?
- ❖ For the agencies you have worked with was the contractor allowed to participate in the decision making process regarding the selection of methods and techniques?
- ❖ For the projects with which you have experience:
 - What were the main contributing factors to success (e.g., planning, innovative methods, equipment, contract flexibility, etc)?
 - What methods and techniques did you employ to gain efficiency during construction?
- ❖ What are the critical problems that hinder delivering an **emergency**-accelerated project on schedule?
 - What corrective actions can be taken to mitigate the impacts of these problems?
 - Could these problems have been avoided? If so, how?

APPENDIX G

I-10 Escambia Bay Bridge Natural Disaster Emergency Contract

APPENDIX G: I-10 ESCAMBIA BAY BRIDGE NATURAL DISASTER EMERGENCY CONTRACT

Four typed pages for the Natural Disaster Emergency Contract executed on the night of 17 September, two days after Hurricane Ivan, are shown here. Following these pages are nine pages of hand-written Assumptions and Clarifications that were attached to the typed pages. The standard FDOT contract boilerplate was fixed to those critical contract components.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
NATURAL DISASTER EMERGENCY CONTRACT

375-040-61
PROCUREMENT
10/03
Page 1 of 5

This contract can only be used during a Governor's Declared Emergency and after the Executive Order and Mission Statement has been issued waiving procurement contracting requirements.

CONTRACT #: H3-140 FIN PROJ #: 41747415201

This agreement is entered into in accordance with the Executive Order # 04-208 by the Governor, dated September 10, 20 04, and amendments thereto, Re: Hurricane Ivan and its' aftermath. (Name of event)

BY THIS AGREEMENT, made and entered into this 17 day of September, 20 04, the STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION, an agency of the State of Florida, hereinafter called "Department" and Gilbert Southern Corp. GM Constructors, et al Joint Venture of Omaha, NE, duly authorized to conduct business in the State of Florida, hereinafter called "Contractor", hereby agree as follows:

- SERVICES AND PERFORMANCE**
In connection with I-10 Escambia Bay Bridge Repair Design Build Project, the Department does hereby retain the Contractor to furnish certain services, information, and items as described in Exhibit A, attached hereto and made a part hereof.
- TERM**
The Contractor shall begin work on or before September 18, 20 04, and shall complete all work required by this agreement on or before December 18, 20 04.
- COMPENSATION (choose one)**
 - Cost Plus _____ % (Maximum Limiting Amount \$ _____)
 - Cost Plus (Fixed Fee) _____ (Maximum Limiting Amount \$ _____)
 - Unit Prices as described in Scope of Services, Exhibit A. (Maximum Limiting Amount \$ 26,481,000.00) C70
 - Lump Sum in the amount of \$ _____ (Choose one method below)
 - Entire amount upon completion
 - Incrementally as detailed in Exhibit _____
 - Percentage of completion.

Cost, used in the selection above, is defined as Direct Salaries without payroll burden, Direct Materials, Direct Subcontracts, and other Direct Expenses.

Invoices for fees or other compensation for services or expenses will be certified by the Contractor and shall be submitted in detail sufficient for a proper preaudit and postaudit thereof.

Invoices for travel expenses shall be submitted and paid in accordance with Section 112.061, Florida Statutes.

Records of costs incurred under terms of this agreement shall be maintained and made available upon request to the Department. The Contractor shall permit the Department to perform or have performed, an audit of the records of the Contractor and any or all subcontractors to support the compensation paid the Contractor. The audit may be performed as soon as practical after completion and acceptance of the contracted services. The Department shall have the right to deduct from any payment due to the Contractor an amount sufficient to satisfy any amount due and owing the Department by the Contractor under this agreement. Final payment to the Contractor shall be adjusted for audit results. If after completion of the project it is determined that the Department is due a refund of amounts previously paid the Contractor, the Contractor will refund said amount to the Department within 30 days of notification.
- COMPLIANCE WITH LAWS**
The Contractor shall allow public access to all documents, papers, letters, or other material subject to the provisions of Chapter 119, Florida Statutes, and made or received by the Contractor in conjunction with this agreement. Failure by the Contractor to grant such public access shall be grounds for immediate unilateral cancellation of this agreement by the Department.

5. TERMINATION AND DEFAULT

This agreement may be canceled by the Department in whole or in part at any time the interest of the Department requires such termination.

If this agreement is terminated before performance is completed, the Contractor shall be paid only for that work satisfactorily performed for which costs can be substantiated.

6. ASSIGNMENT AND SUBCONTRACTORS

The Contractor shall not sublet, assign, or transfer any work under this agreement without the prior consent of the Department.

7. INDEMNITY

The Contractor shall indemnify and hold harmless the Department, its officers and employees from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by negligence, recklessness, or intentional wrongful misconduct of the Contractor and persons employed or utilized by the Contractor in performance of this agreement.

It is specifically agreed between the parties executing this agreement that it is not intended by any of the provisions of any part of the agreement to create in the public or any member thereof, a third party beneficiary hereunder, or to authorize anyone not a party to this agreement to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this agreement.

8. ANTI-COLLUSION

The Contractor represents to the Department that no person or persons, firm, or corporation, other than the Contractor, has an interest in this agreement as a principal, and that this agreement is entered into by the Contractor without collusion with any person, firm, or corporation.

9. FUNDING REQUIREMENTS (check if applicable and attach form FHWA-1273 "Required Contract Provisions, Federal-Aid Construction Contracts".) The most recent version of the form can be obtained at <http://www.fhwa.dot.gov/programadmin/contracts/1273.htm>

The services provided under this agreement involve funding from the Federal Highway Administration (FHWA), and the provisions indicated on form FHWA-1273 (attached) apply.

10. MISCELLANEOUS

Invoices are to be mailed to: Eric Benson - Milton Operations Center - Ph: (850)981-3000

at this address: 6025 Old Bagdad Highway
Milton, FL 32583

This agreement embodies the whole agreement of the parties.

Attachments: Exhibit A (Scope) Exhibit B (Lobbying Prohibition)

Added Attachments: Exhibit "C" Details of Fees Standard Specifications for Design Build Projects - Div. I

Supplemental Specifications - Contractor Classifications ^{Required as part} DOT Response to Contractor Classifications
incorporated and made a part hereof. AT (Audio Tape)

CONTRACTOR

BY:

[Signature]
[Signature]
(Name)
SCOTT L. GREEN
(Title)

STATE OF FLORIDA
FLORIDA DEPARTMENT OF TRANSPORTATION

BY:

[Signature]
(Name)
Director of Transportation Operations
(Title)

Contractor Address:

Gilbert Southern Corp. GM CONSTRUCTORS, A JOINT VENTURE
3555 Farnam Street
Omaha, NE 68131

Telephone Number:

(402) 342-2052

Fax #

FEID # ~~5470630367002~~ 20-1646900 MD

EXHIBIT B
LOBBYING PROHIBITION

The undersigned certifies, to the best of his or her knowledge and belief, that:

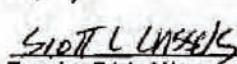
- (a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence either directly or indirectly an officer or employee of any state or federal agency, a member of the Florida Legislature, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-L, "Disclosure Form to Report Lobbying", in accordance with its instructions.
- (c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representative of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any persons who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

BY:

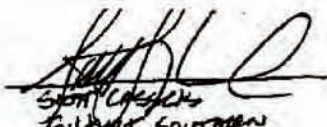

Signature

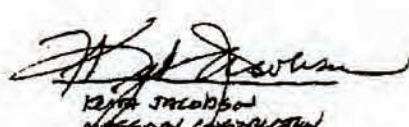

(Contractor)


Typed or Printed Name and Title


Typed or Printed Name and Title

Hand-Written Assumptions and Clarifications


SCOTT CRISWELL
GILBERT SOUTHERN


MARK JOHNSON
PROFESSIONAL ENGINEER

9/17/04

ASSUMPTIONS + CLARIFICATIONS

To Gilbert Southern Corp and Massman Construction's Proposal of Sept 17, 2004

- (A) X (deleted)
- (B) No special quality and inspection services are included; all inspection services are provided by others.
- (C) No anchoring system is provided in re setting or realigning

any slab.

(D) As explained our system assumes long'l sawcutting + handling all Phase I slabs in thirds

(E) We have assumed there is sufficient water in all areas necessary to be accessed by water

(F) No environmental restrictions are included.

(G) We have assumed we can move mat'l barges to the existing fender system

3/7

- (H) No exterior barrier replacement is included
- (I) We have assumed we can drill holes thru the deck for rigging purposes and that the span can be hoisted from places other than just the ends.
- (J) No repairs to any span is included (spalls, chips, cracks, barrier, etc)
- (K) See Revised (K) As discussed we are not removing any wreckage in Phase I or II. All scour related issues are the responsibility of the owner.

4
7

- (L) Any and all access bridge materials are assumed to be delivered by the owner. ~~Access design/site services are to be provided by the owner.~~ C
- (M) All extra work is considered to be off the critical path and not impactive to schedule.
- (N) No electrical work or any utility or any communication systems are included.
- ~~(O) Our price is based on the bid (quantity) times the unit price as provided by the owner. J.C.~~
- (O) Our price is the result of using

5/

owner bid quantities, as provided in the last Sept 17 bid set, times the unit prices we developed Friday afternoon, Sept 17, after a series of meetings with the owner.

Ⓟ We expect and clearly understand that the owner will expedite all approvals (4 hours max), and work with the contractor in a fair + equitable manner due to the accelerated nature of the estimate, pricing and scope of this work.

Ⓠ We have approximated the approach work based on a visual examination of the site conditions as of Sept 17. Further

6/7

deterioration of shoreline or roadway is not our responsibility. No ^{extensive} erosion control measures have been included.

(R) We understand that Phase I is to be completed (as in "open the bridge to traffic") in 24 days; liquidated damages of \$250,000/day will apply after that. Incentive bonus for opening the bridge to traffic also equals \$250,000/day up to a max. of 14 days

~~(S) We understand that the 24 day schedule is developed by the owner on the basis of his quantities~~

~~It presented to us on Sept 17 late in
the afternoon. Significant variation
in quantities which increase the time
of performance will extend the incentive/
disincentive completion date for the
purpose of calculating the incentive
payment.~~

~~7/4~~

Revised (K)



Gilbert/Massman will remove submerged deck slabs from the river bottom and transport slabs to shore for ~~to~~ demolition and disposal for the unit price of ~~\$5,000~~ ^{\$51,000} per slab. This price assumes that each slab is ^{reasonably} accessible for devices to attach rigging and that the slab can be readily raised and transferred to a material barge. This price does not include any excavation, jetting, air lifting, ^{rebar cutting, underwater demolition} or other method to ~~have~~ uncover, loosen or assist in slab removal. These items

^{all of these extra}
~~means, and methods and equipment~~
 which ~~might be~~ necessary to facilitate
 facilitate the slab removal will
 be performed ~~at~~ on a force
 account basis, ^{including time delays if}
~~the slab removal~~
 applicable;
~~unit price~~

Gilbert/Massman will remove and
 dispose of damaged pile bents for
 the unit price of 25,000⁰⁰ per
 bent. Removals will be ~~from~~
~~removed~~ down to river bottom.

It is understood and agreed that
 submerged slabs under Phase I construction
 will remain in place as is.

Lump Sum Price Broken into Cost Categories for Phase I

Request for Proposal
 <Project Name>

ATTACHMENT "A"
DESIGN-BUILD BID BLANK
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

BID PRICE PROPOSAL

The DESIGN BUILD FIRM is required to break the total firm lump sum price down into the categories shown below and submit in a sealed envelope to Carolyn Watson, Professional Services Administrator, 1074 Hwy. 90, Chipley, Florida, 32428.

Phase I

Item Description	Units	Unit Price	Total
I. Design Services	LS	588,000.00	588,000.00
II. Bridge Construction			
1. Construction Mobilization	LS	2,000,000.00	2,000,000.00
2. Beam Slab Relocation (Eastbound to Westbound)	12 EA	55,000.00	660,000.00
3. Beam Slab Realignment	20 EA	57,000.00	1,080,000.00
4. Substructure - Replace Bent	1 EA	615,000.00	615,000.00
5. Substructure - Major Repair for structural integrity	6 EA	325,000.00	1,950,000.00
6. Removal and Disposal	LS	SEE BELOW IN PHASE II	
III. Roadway Construction	LS	1,100,000.00	1,100,000.00
PHASE I PRICE			7,993,000.00



**A GUIDE TO BEST PRACTICES FOR
CONTRACT ADMINISTRATION
OFFICE OF FEDERAL PROCUREMENT POLICY (OFPP)
OCTOBER 1994**

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FOREWORD

This is the first in a series of guidebooks on best practices developed by the Office of Federal Procurement Policy. This guidebook contains best practices in contract administration that should be useful tools to program and contracting officials in administering federal contracts. The covered areas are:

Roles and Responsibilities of the Contracting Officer's Technical Representative (COTR).

Reviewing and Processing Vouchers.

Contract Closeout

These practices should not be viewed as mandatory regulatory guidance; instead they should be viewed as techniques that we hope are useful in performing the contract administration function.

As best practices are developed in other areas of contract administration, a supplement will be issued to the guidebook.

We wish to thank the procurement and program officials from the major Executive Departments and agencies, and those representatives from the private sector, who provided information on their experiences in contract administration as the basis for this guidebook.

Copies of the guidebook may be obtained from the Executive Office of the President's Publications Office by writing Office of Publications, 725 17th Street, N.W., Room 2200, New Executive Office Building, Washington, DC 20503.

Steven Kelman

Administrator

Office of Federal Procurement Policy

Office of Management and Budget

CONTRACT ADMINISTRATION

Contract Administration involves those activities performed by government officials after a contract has been awarded to determine how well the government and the contractor performed to meet the requirements of the contract. It encompasses all dealings between the government and the contractor from the time the contract is awarded until the work has been completed and accepted or the contract terminated, payment has been made, and disputes have been resolved. As such, contract administration constitutes that primary part of the procurement process that assures the government gets what it paid for.

In contract administration, the focus is on obtaining supplies and services, of requisite quality, on time, and

within budget. While the legal requirements of the contract are determinative of the proper course of action of government officials in administering a contract, the exercise of skill and judgment is often required in order to protect effectively the public interest.

The specific nature and extent of contract administration varies from contract to contract. It can range from the minimum acceptance of a delivery and payment to the contractor to extensive involvement by program, audit and procurement officials throughout the contract term. Factors influencing the degree of contract administration include the nature of the work, the type of contract, and the experience and commitment of the personnel involved. Contract administration starts with developing clear, concise performance based statements of work to the extent possible, and preparing a contract administration plan that cost effectively measures the contractor's performance and provides documentation to pay accordingly.

Post award orientation, either by conference, letter or some other form of communication, should be the beginning of the actual process of good contract administration. This communication process can be a useful tool that helps government and contractor achieve a clear and mutual understanding of the contract requirements, helps the contractor understand the roles and responsibilities of the government officials who will administer the contract, and reduces future problems. It is helpful to have a pre-meeting with applicable program and contracting officials prior to the post award orientation conference so that there is a clear understanding of their specific responsibilities and restrictions in administering the contract. Items that should be discussed at the pre-meeting include such things as the authority of government personnel who will administer the contract, quality control and testing, the specific contract deliverable requirements, special contract provisions, the government's procedures for monitoring and measuring performance, contractor billing, voucher approval, and payment procedures.

Where appropriate, an alternative dispute resolution (ADR) technique known as "partnering" should be discussed with the contractor to help avoid future contract administration problems. Partnering is a technique to prevent disputes from occurring. It involves government and contractor management staff mutually developing a "plan for success," usually with the assistance of a neutral facilitator. The facilitator helps the parties establish a nonadversarial relationship, define mutual goals and identify the major obstacles to success for the project. Potential sources of conflict are identified, and the parties seek cooperative ways to resolve any disputes that may arise during contract performance. The process results in the parties developing a partnership charter, which serves as a roadmap for contract success. Many agencies have successfully used partnering on construction projects and are now beginning to apply these principles in the automated data processing/information resources management area.

Good contract administration assures that the end users are satisfied with the product or service being obtained under the contract. One way to accomplish customer satisfaction is to obtain input directly from the customers through the use of customer satisfaction surveys. These surveys help to improve contractor performance because the feedback can be used to notify the contractor when specified aspects of the contract are not being met. In addition, the contracting and program officials can use the information as a source of past performance information on subsequent contract awards. Customer satisfaction surveys also help to improve communications between the procurement, program, and contractor personnel.

OVERVIEW OF THE CONTRACT ADMINISTRATION PROJECT

Several weaknesses have been identified in contract administration practices used by civilian agencies. The principal problem is that contracting officials often allocate more time to awarding contracts rather than

administering existing contracts. This often leads to problems in contractor performance, cost overruns, and delays in receiving goods and services. Several other deficiencies have been noted such as unclear roles and responsibilities of the contracting officer's technical representatives (COTR), excessive backlog in contract closeout and incurred costs audits, improperly trained officials performing contract oversight, unclear statements of work that hinder contractor performance, and inadequate guidance on voucher processing and contract closeout. These weaknesses were identified in reports issued by the Office of Management and Budget, namely, the "Report on Civilian Agencies Contracting Practices" (1992), the "Report on Service Contracting Practices" (1993), and the "Interagency Report on Civilian Agency Contract Administration" (1993).

The primary objective of the contract administration project is to establish best practices that agencies can use to improve contract administration to assure responsiveness to customers and best value to taxpayers. Improving contract administration practices will help to achieve excellence in contractor performance so that the government receives goods and services on time, and within budget.

A Contract Administration Team has been established to plan and carry out this project. The team conducted interviews with contracting officials in the major departments and agencies and the private sector to gather best practices or tricks-of-the-trade that could be applicable on a governmentwide basis. Also, guidance documents that had been developed by the agencies and the private sector were reviewed to help develop the best practices included in this guidebook.

Best Practices are defined as techniques that agencies may use to help detect and avoid problems in the acquisition, management, and administration of contracts. Best practices are practical techniques gained from practical experience that may be used to improve the procurement process.

Although several weaknesses have been identified as mentioned above, this guidebook provides best practices in three areas of contract administration: clarifying the COTR's roles and responsibilities, improving methods of processing contract vouchers and invoices, and improving procedures for closing contracts.

Matrixes have been developed that state the concerns surrounding these three areas, with suggested best practices that can be used to help address them.

CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE

(COTR)

The government is becoming increasingly aware of the importance of proper contract administration in ensuring the maximum return on our contract dollars. The COTR plays a critical role in affecting the outcome of the contract administration process.

The technical administration of government contracts is an essential activity. It is absolutely essential that those entrusted with the duty to ensure that the government gets all that it has bargained for must be competent in the practices of contract administration and aware of and faithful to the contents and limits of their delegation of authority from the contracting officer. The COTR functions as the "eyes and ears" of the contracting officer, monitoring technical performance and reporting any potential or actual problems to the contracting officer. It is imperative that the COTR stay in close communication with the contracting officer,

relaying any information that may affect contractual commitments and requirements.

The COTR's contract administration duties can be simple or complex and time-consuming, depending on the type of contract, contractor performance, and the nature of the work. Minimizing the use of cost-reimbursement contracts and relying more on fixed price performance based contracts should reduce the amount of resources and time devoted to contract administration. For example, a fixed-price contract requires less surveillance by the COTR than a cost-reimbursement contract requires with its technical surveillance and auditing of cost-requirements.

Agencies and departments have many different phrases to describe the COTR. Other titles used are: Contracting Officer Representative (COR), Government Technical Representative (GTR), and Government Technical Evaluator (GTE). For purposes of this guidebook, COTR is being used, as it is the most common title for this function.

CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE

(COTR)

CONCERNS	BEST PRACTICES
Lack of training on COTR duties.	<p>Establishing a COTR training and certification program is a well balanced approach that prepares the COTR to perform the job and also strengthens contract administration.</p> <p>Many agencies have a mandatory COTR training program. Although some may not, their COTRs still attend a basic COTR course; procurement ethics training; refresher COTR training; and Procurement Integrity training.</p> <p>COTRs are encouraged to keep pace with changes in procurement by completing a minimum of eight additional hours of contract administration training every three years, preferably through a refresher COTR training course.</p> <p>Courses in service contracting and preparing statements of work are very helpful for COTRs who handle complex contracts and service contracts; it helps them in the preparation of the contract administration plan.</p> <p>In addition to the general training on COTR duties, many agencies have their contracting officers and the COTR review the contract in detail and concur on the specific oversight approach for the contract.</p> <p>To emphasize the importance of the COTR role, some agencies conduct Executive Seminars to train the COTR's supervisors.</p>
Lack of training on COTR duties. (CONTINUED).	An example of a unique COTR certification program is one that correlates the amount of training to the dollar value and complexity of contracts:

- The **first** level is a minimum of 16 hours of training for those COTRs who handle contracts of relatively low complexity and low contract management risk. The contracts are for dollar values of \$1,000,000 or less and are fixed-price type or straight-forward cost-type contracts.

- The **second** level is a minimum of 40 hours of training for those COTRs who handle contracts of moderate to high complexity and contract management risk. The contracts are for dollar values greater than \$1,000,000 and cost-type contracts, specifically those that have award fee, incentive fee or other complex contracts.

- The **third** level is a minimum of 40 hours in addition to project management training for those COTRs who handle major systems contracts.

After the COTR certification process is completed, some agencies conduct a formal ceremony to present the certificate and acknowledge the importance of the COTR in monitoring contractor performance. A special emblem may be provided to the COTR indicating the specific area in which he/she has been certified.

Lack of a well-defined relationship between the contracting officer and the COTR.

A partnership between the COTR and the contracting officer is essential to establishing and achieving contract objectives because these two officials are responsible for ensuring that the contracting process is successful.

Some agencies have developed a joint partnership agreement that is signed during the preaward phase which defines how the parties will work together. The agreement will contain milestones for the various actions to be taken by each party. In some cases, daily meetings between the COTR and the contracting officer are required.

Lack of a well-defined relationship between the contracting officer and the COTR. (CONTINUED).

It is essential that the program personnel and the procurement office work as a team. In many agencies, this is accomplished by contracting officers attending training with the COTR and discussing relevant questions and concerns about the contract. In other agencies, the teamwork concept is enhanced by designating the COTR early in the process which helps the COTR to become familiar with the program requirements and assist the contracting officer in developing the contract administration plan and the statement of work.

In an effort to help the contracting process work better and foster teamwork, the COTR should ensure that the contracting officer understands the program mission. In some cases, the COTR could invite the contracting officer to accompany him/her to meetings, conferences, and inspections so that the contracting officer can become familiar with the program requirements. Also this affords other field program personnel an opportunity to meet the contracting

officer.

The COTR should furnish to the contracting officer a copy of government-contractor conference reports and correspondence in order to keep the contracting officer up-to-date on contractor performance.

The COTR should be identified as the primary focal point for the customers to call concerning contractor performance. The COTR should also provide the customers with a copy of contract requirements.

An example of a relationship that may exist between the procurement office and the program office is where the contracting officer works for and reports directly to the program manager. The program manager has full authority for fulfilling the requirements of the contract with the client. The contracting officer may be viewed as a facilitator to ensure that good contracting principles are adhered to while achieving the program's goals.

Undefined COTR roles and responsibilities.

Some COTRs view their job as a "plum assignment" because they know their judgement is critical to the success of the program requirements obtained through contracts. It is essential that program offices designate technically competent people with specialized qualifications and expertise as COTRs.

The COTR is nominated in writing by the program organization, and notified by letter written and signed by the contracting officer. In turn, the COTR acknowledges acceptance by signing and returning a copy of the designation letter to the contracting officer.

The COTR letter should define the COTR's role and list specific duties and tasks, including tasks that should not be performed. The letter can be tailored specifically for each contract by listing specific duties and tasks relevant to that contract. The COTR letter can be signed by the COTR's supervisor to indicate that he or she recognizes and accepts the demands on the COTR's performance. A copy of the letter should be provided to the project officer and the contractor so they will understand clearly the COTR's roles and responsibilities.

The COTR can be designated in writing in the contract schedule. Some agencies specify the COTR's name and duties in Section G, Contract Administration, of the contract.

Some agencies have inserted a "Technical Direction" clause which establishes the scope of the COTR's responsibilities in relation to the contractor in their contracts. The clause further defines the role of the COTR during contract performance.

	<p>As a result of lessons learned from contracting officials, COTRs should be responsible for the following:</p> <p>Developing a cost effective contract administration plan.</p> <p>Following the plan to monitor contract performance.</p>
<p>Undefined COTR roles and responsibilities. (CONTINUED).</p>	<p>Informing the contracting officer of any technical or contractual difficulties encountered during performance in a timely manner.</p> <p>Informing the contractor of failures to comply with technical requirements of the contract or to show a commitment to customer satisfaction, particularly if the contractor does not make corrections.</p> <p>Coordinating site entry for contractor personnel, if applicable.</p> <p>Evaluating proposals for and participating in negotiation of changes, modifications, and claims at the request of the contracting officer.</p> <p>Maintaining a file that would contain the following: contract and any modifications, all contract correspondence, inspections, records, memos and conversations with the contractor, invoices/vouchers, COTR appointment letter, and trip reports.</p> <p>Performing final inspection/acceptance of all final work required under the contract, including the review/approval of reports.</p>
<p>Undefined limitations of authority.</p>	<p>COTRs are responsible for understanding the contract terms and conditions and knowing the scope and limitations of their authority. COTRs are encouraged to contact the contracting officer for guidance if they are unclear about their authority or any aspects of the contract.</p> <p>Some agencies specify in Section G, Contract Administration, of the contract, information on the COTR's limitation of authority.</p> <p>As a result of lessons learned from contracting officials, COTRs should avoid the following:</p> <p>Awarding, agreeing to, modifying, increasing the scope and dollar value of, or signing any contract.</p> <p>Making commitments or promises (oral or written) to any contractor.</p>
<p>Undefined limitations of authority. (CONTINUED).</p>	<p>Issuing instructions (oral or written) to a contractor to start or stop work.</p> <p>Directing changes (oral or written).</p> <p>Authorizing delivery or disposition of government-furnished property.</p>

Obligating the government.

Granting deviations from or waiving any of the terms and conditions of the contract.

Changing the period of performance.

Authorizing subcontracting or the use of consultants.

Authorizing the use of overtime.

Executing a contract on behalf of the government.

Inadequate surveillance and monitoring of contracts.

The development of a contract administration plan is essential for good contract administration.

Plan can be simple or complex but must specify what the performance outputs of the statement of work are, and describe the methodology to conduct the inspections. This saves time and resources because the COTR is not monitoring the mundane, routine portions of the contract; instead the COTR is focusing on the major outputs of the contract.

The contract administration plan should contain a quality assurance (QA) surveillance plan as a subpart. Development of a plan is important since it provides a systematic structured method for the COTR to evaluate services and products that contractors are required to furnish. The QA plan should focus on the quality of the product delivered by the contractor and not on the steps taken or procedures used to provide that product. It includes appropriate use of pre-planned inspections, validation of complaints and random unscheduled inspections.

Inadequate surveillance and monitoring of contracts.
(CONTINUED).

Enhanced monitoring of contracts can be achieved by having government quality assurance monitors, technical inspectors, and COTRs report on the contractor's technical performance. They make site visits and speak with the contractor concerning the progress of the contract. Surveillance plans are used by them on a daily basis. Random samples are drawn, and schedules of inspection made using a contract administration checklist. A sampling plan should be designed using quality standards. Monitoring should be commensurate with the criticality of the service or task and the resources available to accomplish the monitoring.

As a result of lessons learned from contracting officials who monitor cost-reimbursement contracts, the COTRs should perform a head count periodically, examine time cards and sign-in sheets, review the overtime, and maintain spreadsheets to track direct costs and expenses.

Another valuable tool in monitoring is reviewing contractor reporting requirements such as progress reports, shop plans, and blueprints which often can uncover potential cost overruns, late deliveries, and poor contractor performance.

Many agencies have found that documenting surveillance and monitoring is key to the contract administration process.

Whatever form of monitoring the government utilizes, care should be taken so that the contractor does not have just cause to cite COTR interference in its operations.

Convening quarterly meetings with top level contractor officials, agency senior procurements, and program officials to discuss the contractor's performance helps the COTR ensure that contract terms and conditions are being adhered to.

Consider the use of customer satisfaction surveys for major contracts to determine how program officials, customers, and others interacting with the contractor evaluate the contractor's performance. Some private sector firms now use customer satisfaction surveys to help assess how customers feel about the services they are receiving.

Lack of incentives.

Consider giving an incentive award to the COTR of the year based on such criteria as the amount of savings achieved, quality, timeliness, minimum technical contract changes, and customer satisfaction.

Some agencies cover COTR duties in the COTR position description and have contract administration as a critical job element in the COTR's performance evaluation. This is essential for COTRs who handle large, complex contracts, especially cost-reimbursement ones, that requires extensive surveillance.

An agency COTR newsletter is one mechanism for promoting the accomplishments of the COTR, as well as providing information on changes in procurement laws and legislation.

VOUCHER/INVOICE REVIEW, APPROVAL, AND PROCESSING

Voucher processing is just as important as any other aspect of contract administration. Payment to the contractor for the supplies and services delivered is the government's obligation under the contract. The government expects the contractor to meet all contract requirements for quality, quantity and timeliness. The contractor expects no less of the government in meeting its obligation to timely, accurate payment for supplies and services received. A plan or process for quickly and efficiently meeting this obligation is as essential as the COTR's oversight monitoring plan.

Therefore, it is incumbent upon program, procurement, and finance officials to understand clearly their roles and responsibilities related to reviewing and processing vouchers. This will ensure that payment is only made to contractors who perform in accordance with contract terms and conditions. It is essential that these tasks are discussed with the contractor and COTR during the post award orientation conference. An important aspect of voucher review, approval, and processing is good communication between the COTR, contracting officer, and finance official to ensure that payment is made on time.

For purposes of this guidebook, the words "vouchers" and "invoices" are used interchangeably.

VOUCHER PROCESSING

CONCERNS	BEST PRACTICES
<p>Unclear roles and responsibilities of procurement, program, and finance officials with regard to review and approval of contractor invoices and vouchers.</p>	<p>Although recommendation for approval is often obtained from the COTR, authority to approve or disapprove payment of vouchers and invoices is the responsibility of the contracting officer.</p> <p>Creating a good working relationship between the contracting officer, the financial officer, and the COTR is key to the voucher review and approval process. This, in turn, helps agencies to comply with the Prompt Payment Act.</p> <p>Reviewing the first voucher in detail with the contractor so far as format and level of detail makes the second and subsequent vouchers easier to review and process.</p> <p>COTRs are in the best position to assess the reasonableness of costs and expenditures on vouchers and invoices.</p> <p>COTRs must always remember that payment to a contractor implies work is progressing according to the contract; therefore, COTRs must be assured that the government is getting what it is paying for.</p> <p>The COTR's recommended approval of a voucher implies that to the best of the COTR's knowledge, the nature, type, and quantity of effort or materials being expended are in general accord with the progress of work under the contract.</p> <p>COTRs provide support to the contracting officer and ensure that payments are made to contractors that perform according to contract terms and conditions by monitoring contractor's performance through review of monthly reports, onsite visits, and surveillance reviews.</p> <p>It may be helpful for agencies to have procedures that requires the COTR to certify on the invoices that supplies and services have been received and accepted.</p>
<p>Unclear roles and responsibilities of procurement, program, and finance</p>	<p>In some cases, the contracting officer may designate a resident DCAA auditor as the contracting officer's representative for</p>

<p>officials with regards to review and approval of contractor invoices and vouchers. (CONTINUED).</p>	<p>reviewing and approving vouchers under cost-reimbursement contracts.</p> <p>Contracting and financial officials should always check the mathematical accuracy of the voucher to avoid any overpayment to the contractor.</p> <p>Financial officials should ensure that a copy of each paid voucher is returned to the contracting office for inclusion in the official contract file.</p>
<p>Inconsistent review and approval by contracting officials of vouchers for cost reimbursement contracts prior to payment.</p>	<p>More indepth review of vouchers under cost reimbursement contracts is needed to ensure that costs are not being incurred prematurely and relate to progress under the contract.</p> <p>Although agencies may have different procedures to review and approve vouchers, some agencies have successfully avoided problems by having contracting officials review each voucher.</p>
<p>Insufficient guidance to Contracting Officer's Technical Representatives (COTRs) on how to conduct voucher reviews.</p>	<p>When reviewing vouchers under cost reimbursement contracts, COTRs should check the voucher date against the contract performance period to ensure that costs are being billed for the proper timeframe, and compare the contractor's billing rates against the contract rates to ensure that indirect costs are being billed properly. These measures, along with monitoring the contractor's performance, helps the COTR determine if claimed costs are reasonable for the period covered by the voucher.</p>
<p>Insufficient guidance to Contracting Officer's Technical Representatives (COTRs) on how to conduct voucher reviews. (CONTINUED).</p>	<p>In addition, comparing the contractor's production report with any information gathered through monitoring the contractor's performance gives the COTR some indication of the contractor's workload. If the contractor reports the same workload for two different tasks, this is an indication to the COTR that something maybe wrong with the invoice and it should be discussed with the contractor.</p> <p>When reviewing vouchers under cost reimbursement contracts, the COTR should review the contractor's time cards, sign-in-sheets, and overtime records to help assess the reasonableness of direct labor costs.</p> <p>Maintaining monthly reports or spreadsheets on costs incurred against the contract amount helps the COTR monitor the contractor's expenditures under the contract.</p> <p>A checklist or some other voucher review form that includes the major cost categories (labor, travel, supplies, other direct costs, subcontract costs) may be a useful tool in reviewing vouchers to determine the reasonableness of the contractor's claimed costs. The checklist helps the reviewing official remember to check all cost</p>

	categories before recommending approval of the voucher for payment.
No assessment of reasonableness of direct costs when approving vouchers under cost-reimbursement contracts. (Only technical progress and product or service quality are reviewed).	Some agencies conduct a financial management review of the contractor's current invoices during contract performance. The review is conducted at the contractor's location. The review helps the agency determine if the contractor's accounting and billing systems, and internal control policies and procedures are adequate to support costs claimed on the invoice. The review, which may be done by in-house officials with audit experience results in timely recovery of overpayments and lost interest, settle cost allowability issues, and other matters associated with the contractor's invoice. The review can fill the gap between the initial invoice review and the contract audit.
No verification that approved indirect cost rates are being used.	If there are large cost-reimbursement contracts where a resident DCAA auditor is at the contractor's location, consideration should be given to sending a copy of the voucher directly to DCAA for review prior to payment. This reduces the burden on the contracting officer and helps detect unallowable costs. Subsequent review by the COTR helps the contracting officer determine if contractor performance is commensurate with the amount shown on the voucher.
Insufficient policies and procedures on voucher submission and approval.	Notify contractor of defects in invoice, i.e., an "improper invoice," within seven (7) days after receipt. Authorization to pay may be indicated by an approval stamp on the reverse of the original voucher.
Insufficient information on the voucher for thorough desk review of claimed costs to determine allowability, allocability, and reasonableness.	Including detailed billing instructions in the contract provides information to the contractor on how to complete vouchers and invoices properly. The instructions could provide samples of how a voucher should be prepared and submitted to the government for payment. When appropriate, it may be helpful to define in the contract the distinction between a completion voucher (cumulative claim and reconciliation) and a final voucher so that the contractor can provide correct information on the voucher. If the contractor provides its final settlement of claimed costs on the completion voucher, that voucher should be considered the final voucher.
Delays in processing vouchers.	Designating alternate COTRs and contracting officers that have authority to review and approve contractor vouchers and invoices may alleviate delays in the approval process. Performance measurements may be useful tools to help the finance office determine how well the agency is doing in reviewing and processing invoices/vouchers for payment in order to comply with

the Prompt Payment Act.

Prompt payment performance standards may help detect weaknesses in the process and thus improve business relationships with the contractors, and reduce costs to the government.

Delays in processing vouchers.
(CONTINUED).

Tracking such performance data as the amount and number of penalty payments, the reason, number and amount of discounts taken, the number and amount of lost discounts, and late payments provide valuable information to the finance office.

Established standards, i.e., the number of days for review and approval by the contracting officer and COTR, helps to process vouchers in a timely manner.

If timely payment of vouchers is a problem, a dedicated person in the contracting office (normally a clerical position) may be needed to log vouchers in and out, check figures for accuracy, and assist the contracting officer, the financial officer and COTR in timely processing of vouchers and invoices.

Insufficient documentation, record keeping, and tracking of invoices and vouchers.

Maintaining a voucher payment log, either manually or computerized, in the contract file helps to track the contractor's claimed costs and fee (if applicable) against contract costs and fee.

Maintaining a copy of each paid voucher in the official contract file helps to ensure proper accountability.

Establishing a separate post office box for receipt of vouchers may help to avoid delays in processing.

Automated invoice tracking systems may help to track vouchers and provide information to show if they are delinquent for payment because standards were not met.

Automated invoice tracking systems may provide such reports as: voucher status by specialist, overdue vouchers, vouchers that have been rejected, and voucher history.

Contractor support may be used, if necessary, to operate the automated invoice tracking system. Care should be taken to ensure that the contractor does not make decisions about vouchers that should be made by contracting officials.

Sending a list of names of authorized persons to sign invoices and vouchers on each contract to the finance office with periodic updates avoids delays in paying vouchers.

CONTRACT CLOSEOUT

Contract closeout begins when the contract has been physically complete, i.e., all services have been performed and products delivered. Closeout is completed when all administrative actions have been completed, all disputes settled, and final payment have been made. The process can be simple or complex depending on the contract type for cost-reimbursement contracts. This process requires close coordination between the contracting office, the finance office, the program office, and the contractor. Contract closeout is an important aspect of contract administration.

The contract audit process also affects contract closeout on cost-reimbursement contracts. Contract audits are required to determine the reasonableness, allowability, and allocability of costs incurred under cost reimbursement contracts. Although there is a preaward audit of the contractor's proposal, there is a cost-incurred audit of the contractor's claim of incurred costs and a close out audit to reconcile the contractor's final claim under the contract to incurred costs previously audited. When there is a delay in completing the cost-incurred and closeout audits, contracting officials often can not complete the closeout process for many cost reimbursement contracts. Although the FAR does allow agencies to use quick closeout procedures (desk reviews) to close some cost reimbursement contracts without a closeout audit, inconsistencies have been noted in the use of the procedures.

It is important that contracting officials have a good working relationship with the agency's auditors and the cognizant audit agency to accomplish contract closeout under cost-reimbursement contracts.

CONTRACT CLOSEOUT BEST PRACTICES

CONCERNS	BEST PRACTICES
<p>Lack of management attention to contract closeout.</p>	<p>Establishing a separate closeout function within the contracting organization emphasizes the importance of contract closeout.</p> <p>The best time to concentrate on contract closeout is during the October to February timeframe when the contract placements workload may be less.</p> <p>Using contractor support may be an efficient way to accomplish contract closeout when in-house resources are limited.</p> <p>Such administrative functions as creating the closeout file, soliciting required closeout forms from internal organizations, obtaining the contractor's release are duties that can be performed through contractor support as long as the forms are executed and approved by the contracting official.</p> <p>Although the contract specialist continues to work with the contractor through physical completion under "cradle-to-grave" contract administration, this does not prohibit a separate group from performing the closeout function.</p> <p>For civilian agencies entering into agreements with the Defense Contract Management Command to perform contract administration</p>

and contract closeout functions may be useful when in-house resources are limited.

Rewarding employees through incentive awards (i.e., on-the-spot cash awards) for the highest number of closeouts completed is a good motivation factor.

Using measurements standards such as those prescribed in the FAR for closing various types of contracts helps to keep the focus on the closeout effort.

Cross-training in contract closeout is good for contract specialists as it helps them to understand the importance of writing good contracts.

Poor Management Information Systems to monitor the contract closeout process.

Consider using a management information system with milestones to track contract closeout from physical completion through final payment.

Integrating the closeout system with a word processing capability allows for automatic generation of closeouts letters which speeds up the closeout process.

Using contractor support for data entry services may be an alternative when in-house resources are limited.

Poor coordination between contracting activity, inspectors general (IG), and cognizant audit agency.

It may be helpful to notify the IG and the cognizant audit agency whenever a cost-reimbursement contract is awarded that requires an incurred cost or indirect cost rate proposal audit. Providing that information at the time of award helps the audit agency program future requirements into its workload projections.

Forecasting audit needs and communicating those needs to the IG and the cognizant audit agency helps to improve working relationships. Developing an information management system may be a useful tool to facilitate that process.

Prioritizing audit requirements and communicating these requirements to the IG and the cognizant audit agency helps in projecting the audit workload.

Specifically stating in the audit request any special information that should be included in the audit report makes the report more useful and improves working relationships between the contracting office, the IG's office, and the cognizant audit agency.

Using a team approach consisting of contracting officials and audit staff to determine those contractors that should be audited helps to forecast audit requirements better.

Sharing such information with the cognizant audit agency as a listing

	of prime and subcontracts awarded that are subject to defective pricing reviews or contracts physically completed but not closed over three years helps the auditors better to define the audit backlog, determine audit resources, and prioritize contractor locations for audits.
Poor coordination between contracting activity, inspectors general (IG), and cognizant audit agency. (CONTINUED)	Subsequently, requesting the cognizant audit agency to provide such information as the directory of for-profit contractors with the audit office responsible for the contractor's audit and those contractors that are late in submitting their indirect cost rate proposals or submitted inadequate proposals helps the contracting office project its closeout workload.
Large backlog of unscheduled audits.	<p>Using quick closeout procedures to the extent practicable helps to reduce the audit workload. When a determination can be made that there is no evidence of fraud or waste, the contractor's performance is good, and there is no history of unallowable costs, then quick closeout procedures may be appropriate.</p> <p>Performing risk assessments to determine contractors that should be audited will help to better manage the audit workload.</p> <p>Using more fixed price contracts helps to reduce the requirements for contract audits.</p> <p>Encouraging contractors to submit their final vouchers in a timely manner avoids delays in requesting the final closeout audit under cost reimbursement contracts.</p> <p>Using rate checks (labor and indirect cost rate) to the maximum extent possible instead of full blown audits when such audits would not add value helps to reduce audit backlog.</p>
Noncompliance with FAR provision for submitting Indirect Cost Rate (ICR) Proposals by some contractors delays the audit process.	Using the post award orientation session to educate the contractors (in particular small business firms) on the requirements for contract closeouts and the need to submit ICRs in a timely manner should help make the closeout process easier.
Avoiding Disputes in Contract Closeout.	In construction, claims sometimes cause closeout problems. An alternative dispute resolution technique known as "partnering" should be considered. Creating a partnership agreement with the contractor helps to avoid disputes. Having the partnership agreement signed by all parties -- the contracting officer, COTR, and the contractor -- creates a buy-in to the overall goal: "Completion on time, within budget, and without claims."
Lack of a specific dollar threshold for using quick closeout procedures.	<p>Using specific dollar thresholds for quick closeouts may be practicable so long as the government's interests are protected, low risk is involved, and indirect rates can be verified.</p> <p>Knowing the contractor's history of incurred costs, billings, and</p>

performance are additional factors to be considered when establishing thresholds for using quick closeouts.

Establishing a good working relationship with the finance office helps in the closeout process. Getting the finance office to provide a listing of contracts where money will be lost if final settlement does not occur helps to target attention on those contracts that may be closed through quick closeout procedures.

Closeout documentation.

Always use a checklist and include it in the contract file when closing contracts. This helps to assure that all actions have been completed.

CONCLUSION

A good contract administration program is essential to improving contractor performance under federal contracts. The best practices that have been included in this guidebook is a first step at providing some practical guidance that should help to improve the contract administration process.

We believe that program and contracting officials need to realize the importance of good contract administration. Convening a forum to discuss these best practices may help agency components focus more attention to them and begin using them to help resolve problems they may encounter. Structuring a contracting administration program by the type of activity, e.g., contract monitoring, voucher review, contractor performance evaluation, using various levels (Level 1 - proactive, level 2 - active, and level 3 - reactive) may also help to better allocate contract administration resources so that these best practices can be useful.

In addition, giving an annual contract administration award to recognize individual and group accomplishments in contract administration highlights its important to the procurement process. Some agencies even include contract administration as a performance goal of contracting officials as an incentive for them to do a good job in this area.

In conclusion, we hope that the best practices included in this guidebook will be useful. Suggestions for any other best practices in the three areas, in other areas of contract administration, or pertaining to the contracting process should be forwarded to:

Office of Federal Procurement Policy

Room 9001, New Executive Office Building

725 17th Street, N.W.

Washington, DC 20503

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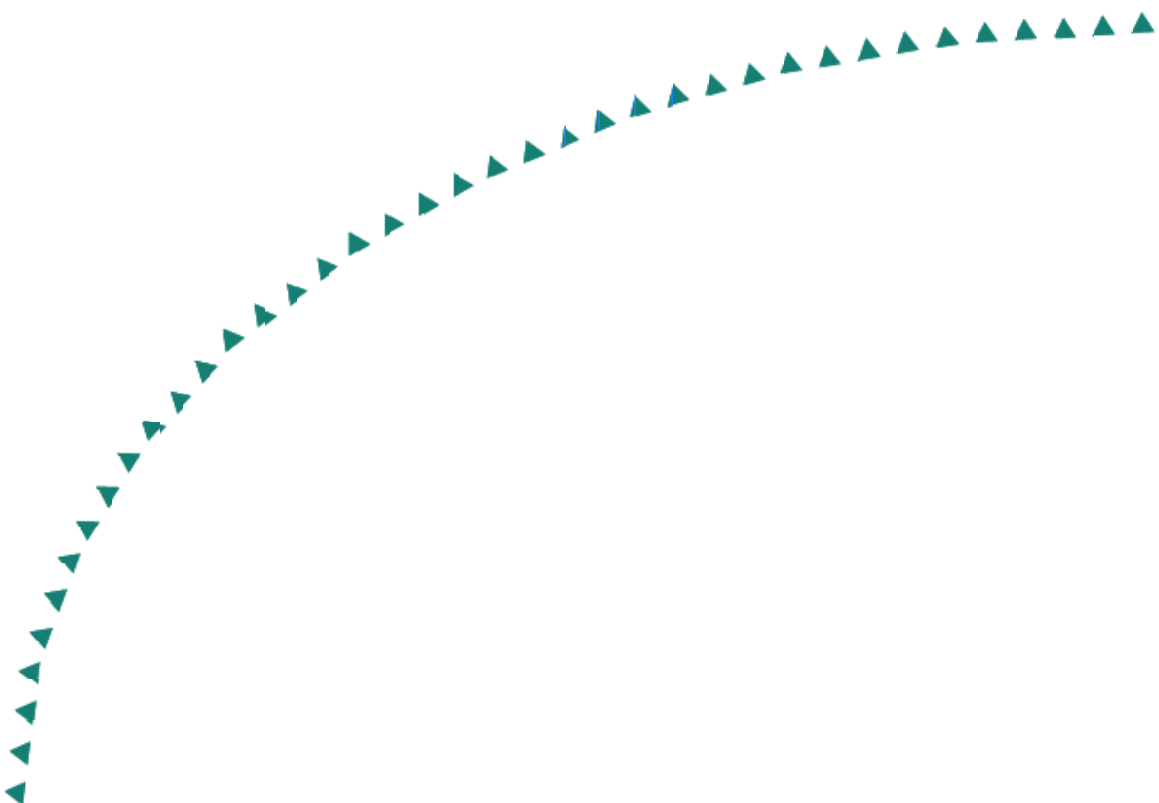
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Final Report

Best Practices for Project Construction Streamlining



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Best Practices for Project Construction Streamlining

Final Report

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EXECUTIVE SUMMARY

This report identifies project construction streamlining techniques that have been used in Minnesota and presents information on best practices based on interviews with practitioners.

Techniques surveyed include:

- Smart Compaction Technology
- New Testing Devices
- Quality Contract Awarding
- Contractor Milestone Incentives
- Value Engineering
- Road or Lane Closure
- Oscillatory Compactors
- Design-Build
- A + B Contracting
- Performance-Rated Specifications
- Utility Relocation
- Lane Rental

In addition, a variety of other potential construction streamlining techniques are identified as part of a secondary review of strategies. A literature review was conducted and abstracts from these sources are included as an appendix to this report providing information on these secondary strategies.

CHAPTER 1: INTRODUCTION

Task Background and Purpose

Recent initiatives at the state and federal level have focused attention on possible ways of streamlining or expediting the project delivery process. While some of these efforts have focused on methods and practices to speed planning and pre-construction activities, the purpose of this investigation was to examine means of speeding the roadway and highway construction cycle. Highway construction time has very real costs to all parties involved in the process; highway departments, contractors, and most especially the public whose tax dollars and time is spent waiting for projects to be completed. Recognizing this, the Local Road Research Board's (LRRB) Research Implementation Committee (RIC) began this investigation to explore current activities, techniques and materials whose use reduces construction time, and to determine the extent of their use by city and county engineers in Minnesota.

Study Process

The study process consisted of the following activities:

1. Literature Review: The intent of the literature review was to discover the range of possible construction streamlining techniques, of what they consisted and how they worked.
2. Technique Categorization: In this step, streamlining techniques were identified as being one of two levels; Level 1 techniques are those with some likelihood for immediate application and drawn from Minnesota experience; Level 2 techniques are those with merit but no local experience.
3. Initial Survey of Minnesota City and County Engineers: This initial survey was intended to determine the depth of experience of engineers in Minnesota in using the Level One construction streamlining techniques.
4. Follow-Up Survey of Minnesota City and County Engineers: This follow-up survey was intended to gather information from engineers with experience using the streamlining technique and to determine any benefits or drawbacks, the depth of experience, and the type of project for which it was most useful.
5. Review and Categorize Level 2 Techniques: This was accomplished by conducting a more intensive literature review focused on the specific techniques identified as a result of the initial literature review. Abstracts of interest are collected in Appendix A of this report.

The report is organized into the following sections: Chapter 2 summarizes results of the literature review, Chapter 3 looks at specific project construction techniques, and Chapter 4 presents the results of surveys designed to gauge the depth of experience in Minnesota in using the techniques. Appendix A of this report contains abstracts from research articles directing a reader to more in-depth sources of information about the techniques identified.

CHAPTER 2: LITERATURE REVIEW

The first step in the process of understanding the project construction streamlining activities used in Minnesota was to develop an understanding of the potential techniques available to engineers and contractors. This was accomplished by undertaking a comprehensive literature review on the state of the art and practice.

As mentioned previously, the subject of streamlining and/or expediting project construction is one that has generated much attention in recent history. The literature review uncovered numerous sources of information. One of the most important first steps in the investigation was to categorize the various techniques in order to present information in an organized and comprehensible fashion. It would be presumptuous to imply that this literature review and the process of categorization captured all possible techniques and developed a hierarchy of categorization that can be universally applied regardless of circumstances. Rather, the information that follows was believed to be that which best suited the specific circumstance for this particular investigation.

Streamlining Categories

For this study, project construction streamlining techniques have been categorized, in no particular order, as follows:

- Equipment Innovations
- Construction Processes
- Contractor/Contracting Processes
- Utility Relocation Processes
- Advanced Technology Applications
- Human Resource Innovations
- Materials Usage

CHAPTER 3: PROJECT CONSTRUCTION STREAMLINING TECHNIQUES

Project construction streamlining techniques are summarized below by category along with a brief description of what the technique entails. Readers desiring more detailed information on each technique are directed to Appendix A, which contains abstracts from articles published on the subject.

Understanding that not all potential methods or practices were advanced to the point of being applicable or appropriate for implementation in Minnesota, the Technical Assistance Panel (TAP) convened for this task decided to sort identified techniques into two categories; Level 1 and Level 2. Level 1 techniques were identified as those with the some likelihood of immediate implementation in Minnesota local governments while Level 2 techniques were those that were of merit but with little likelihood for local experience.

After an initial sorting of information uncovered in the literature review, the TAP convened to review the results and give input into sorting techniques into Level 1 and Level 2 categories. They identified the following categories.

3.1 LEVEL ONE TECHNIQUES

Level 1 techniques are summarized below. These techniques were used as the basis to craft a follow-up survey designed to determine the nature and extent of Minnesota City and County engineers' experience in implementation. The definition of the techniques is found below, with information from the follow-up survey on Minnesota experience to follow.

Equipment Innovations

- *Smart Compaction Technology:* Smart compaction technology uses a device that measures stiffness while the compactor is in motion and automatically adjusts compaction pressure based on readings of soil conditions.
- *Oscillatory Compactors:* Unlike traditional vibratory compactors that achieve compaction by bouncing the drum on the ground, oscillatory compactors ensure that the roller drum maintains constant contact with the ground for faster, more effective compaction.
- *New Testing Devices:* New testing devices that reduce laboratory testing include ground-penetrating radar measuring air voids or density of pavements, light-weight deflectometers measuring compaction, devices that provide instantaneous readings of soil moisture, and nuclear-density testing to measure compaction.

Construction Processes

- *Design-Build:* Design-build is an alternative to the traditional Design-Bid-Build system, with the difference being that the design and construction duties are performed concurrently by the same team. It can take various forms, such as: Bridging, when the owner develops the primary project design to the 30-50 percent level; Turnkey, when the

owner requires outside expertise and then allows the entity to turn over the keys at project completion; Design-Build-Warranty, which combines a warranty provision with Design-Build; Design-Build-Maintain, which combines maintenance activities with Design-Build; and, Privatization, when a private entity designs, builds, and maintains a section of roadway in return for a toll or fee.

Contractor/Contracting Processes

- *Quality Contract Awarding*: A process whereby the contract award mechanism focuses on and accounts for quality and ability, not just “least cost.”
- *A+B Contracting*: A+B contracting (also called cost plus time) is a procedure that incorporates the lowest initial cost but also factors into the selection process the time to complete the project.
- *Contractor Milestone Incentives*: Uses contractor milestone incentives to financially award contractors for on-time delivery of specific tasks and/or products.
- *Performance-Rated Specifications*: Rather than telling builders and suppliers how to build a project, they would be given a description of what the end product must “look like,” in terms of performance standards. The standards should be based on the needs of motorists, such as pavement smoothness levels, safety criteria, and the like. Then, working together, the transportation agency, the contractors, and the suppliers can devise innovative ways of getting the job done.
- *Value Engineering*: Value engineering is a process allowing the identification and selection of the best value alternative for designs, materials, processes, systems, and program documentation. It can apply to hardware and software; development, production, and manufacturing; specifications, standards, contract requirements, and other acquisition program documentation; facilities design and construction; and management or organizational systems and processes.

Utility Relocation Processes

- *Utility Relocation*: Places greater responsibility on contractor for dealing with utilities as part of the construction contract.

Traffic Control / Construction Staging

- *Road or Lane Closure*: A practice in which lanes or entire facilities are completely closed to traffic during construction in order to save construction time.
- *Lane-Rental*: An approach whereby contractors are charged for closing down lanes with an incentive to speed construction time.

3.2 LEVEL TWO TECHNIQUES

Level 2 techniques are summarized below. Given direction from the TAP regarding the likelihood and merit of conducting follow-up surveys on these techniques, information regarding Level 2 techniques is summarized in Appendix A.

Equipment Innovations

- *Automated Pavement Testing Technologies:* The use of automated pavement testing technologies allows for in-the-field testing of asphalt and automatic modification of the mix based on testing results.
- *Double-Drum/Triple-Drum Mixers:* Using double- or triple-drum mixers allows for faster, more thorough drying of aggregates.

Human Resource Innovations

- *Incentive Pay:* Create incentive pay for road agency personnel encouraging retention of highly-skilled project managers in effective positions.
- *“Streamline” Project Development:* Uses a “streamlined” project development process, in which the same project manager follows a project through from planning to design to construction management.

Materials Usage

- *Drying Agents:* Uses drying agents like cement lime or fly ash so that soils can be worked more quickly.
- *In-Place Recycling:* Uses in-place recycling as a means of shortening the construction process by reducing the time to transport materials. (Full-depth reclamation or cold-in-place recycling.)
- *Geo-Textiles or Geo-Fabrics:* These fabrics are used in lieu of more time-consuming sub-grade preparations, allowing rapid placement of the granular base and leading to quicker pavement installation.

Construction Processes

- *Pre-Cast / Modular Components:* Construction zones can maximize concurrent work activity with the use of modular, prefabricated components. Precast modular components such as bridge sections or road slabs are common examples.

Advanced Technology Applications

- *“Smart” Database Creation:* This type of database would contain productivity rates for different construction methods and can be used by project managers to provide better information on scheduling or projects.

- *Web-Based Team Collaboration System:* Web-based project management systems eliminate any apparent boundary between a project participant's computer and project's folders and files. They can be as simple as a common e-Room or as complex as web-based central project databases, business-to-business capabilities, and intelligent software agents. Improving communications may speed the construction process.
- *Project Management Software:* Use of project management software in general may expedite construction time by more efficient tracking of project progress, schedule adherence, allocation of staff time and resources, and correspondence management activities.
- *Bid-Preparation Software:* The use of bid-preparation software speeds the process of bid letting.

CHAPTER 4: MINNESOTA CITY AND COUNTY ENGINEERS' SURVEY

After the TAP identified Level 1 and Level 2 techniques from the literature review, they developed a survey of Minnesota City and County Engineers. The survey process was designed in two phases, with the first phase intended to identify agencies with experience using the technique and the second phase intended to glean more in-depth experience from the practitioners. The survey process only dealt with Level 1 techniques; Level 2 techniques, or those of secondary interest, are summarized in abstract form in Appendix A.

Initial Survey

The first survey was a mail-back questionnaire surveying each of the Minnesota County and City Engineers to determine who had experience and identifying a contact person for a follow-up interview. A total of 53 responses were received. Responses for each Level 1 technique are summarized below. By far, the greatest number of responders (32) indicated they had experience closing entire roadways or lanes during construction in order to speed the process. The technique with the next highest number of responders was making contractors more responsible for the utility relocation process (24 responders) and using value engineering (16 responders).

Topic Area	Streamlining Activity	Number of Engineers with Direct Experience	Number Indicating Experience Successful
EQUIPMENT INNOVATIONS	1. Smart Compaction Technology	None	None
	2. Oscillatory Compactors	0	0
	3. New Testing Devices	14	13
CONSTRUCTION PROCESSES	4. Design-Build (in any form)	8	8*
CONTRACTOR / CONTRACTING PROCESSES	5. Quality Contract Awarding	5	5
	6. A+B Contracting	4	4
	7. Contractor Milestone Incentives	4	4
	8. Performance-Rated Specifications	8	7
	9. Value Engineering	16	16
UTILITY RELOCATION	10. Utility Relocation	24	18
TRAFFIC CONTROL / CONSTRUCTION STAGING	11. Road or Lane Closure	32	31
	12. Lane-Rental	2	2

Follow-Up Survey

A follow-up survey was sent via e-mail to all responders of the first survey indicating experience with one or another streamlining technique. This follow-up survey was unique to the technique, so that responders indicating experience with more than one technique were sent one survey for every technique for which they had experience.

These follow-up surveys were intended to discover more information about the depth of experience of Minnesota City and County Engineers with the construction streamlining technique, any benefits or drawbacks associated with its use, and the type of project for which it may be most appropriate. Information from the follow-up survey is summarized in the following pages, with a general definition offered for each, and other information summarized from the survey.

Construction Processes

Design-Build	
Definition: Design-build is an alternative to the traditional Design-Bid-Build system, with the difference being that the design and construction duties are performed concurrently by the same team.	
Number of Survey Responders: 2	Depth of Experience: Design-Build has been used on five Mn/DOT projects; Hiawatha LRT, ROC 52, I-494, TH 10/32 and TH 212.
Applicability: <ul style="list-style-type: none"> This process is not applicable where there may be a great deal of risk placed on contractors. Due to the procurement time of the existing process, small projects (<\$8,000,000) with a short duration (<one construction season) are not appropriate. A different process could be used. 	Drawbacks: <ul style="list-style-type: none"> No Response
Potential Obstacles: <ul style="list-style-type: none"> It requires new legislation 	Lessons Learned: <ul style="list-style-type: none"> “Research what other agencies are doing in this area, know what you are getting into and work with the contracting community to get buy in.”

Design-Build (cont.)

Topic Resource:

Joseph Gladke
Design-Build Program Director
Office of Construction and Innovative Contracting, MS 687
395 John Ireland Blvd.
St. Paul, MN 55155
651-296-3283

Contractor/Contracting Process Techniques

Quality Contract Awarding	
<p>Definition: Quality contract awarding allows a jurisdiction / agency to account for quality and ability when awarding a contract, and not accept the low-cost bidder alone.</p>	
<p>Number of Survey Responders: 3</p>	<p>Depth of Experience: More than 10 years (combined for all responders)</p>
<p>Benefits:</p> <ul style="list-style-type: none"> • Reduced user costs, use of Alternative Technical Concepts from other proposers, and we determine who is the best value contractor, not just the low bid. <p>Applicability:</p> <ul style="list-style-type: none"> • We are currently only allowed to conduct best value selection on design-build construction projects. Due to the procurement time of the existing process, small projects (<\$8,000,000) with a short duration (<one construction season) are not appropriate. 	<p>Drawbacks:</p> <ul style="list-style-type: none"> • No Response
<p>Potential Obstacles:</p> <ul style="list-style-type: none"> • It requires new legislation 	<p>Lessons Learned:</p> <ul style="list-style-type: none"> • “Research what other agencies are doing in this area, know what you are getting into and work with the contracting community to get buy in.”
<p>Topic Resource:</p> <p>Joseph Gladke Design-Build Program Director Minnesota Department of Transportation Office of Construction and Innovative Contracting, MS 687 395 John Ireland Blvd. St. Paul, MN 55155 651-296-3283</p>	

A + B Contracting

Definition: A + B contracting is a method of bidding that includes both cost **and** time in making a low-bid determination for contract award purposes. In this formula, “A” = the dollar amount of the work to be performed and “B” = the number of calendar days bid to complete the work x the user-delay cost. The lowest “A + B” bidder is awarded the contract.

Number of Survey Responders: 2

Depth of Experience: More than 10 years
(combined for all responders)

Benefits:

- Reduced construction time

Applicability:

- Not applicable for projects with the potential for delays, i.e., utilities, complex projects, multi-year construction phasing, etc.

Drawbacks:

- “Contractor must be knowledgeable of this type of bidding process.”

Potential Obstacles:

- Impacts to contractors are highly scrutinized.
- Disagreements over compensable delays may be problematic.

Lessons Learned:

“There must be a balance between the benefits of early completion and any increased cost of construction.”

Topic Resource:

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 Rock County Engineer
 P.O. Box 808
 1120 N. Blue Mound Avenue
 Luverne, MN 56156
 507-283-5010

Contractor Milestones	
<p>Definition: With this technique, contractors are financially awarded for meeting project milestones and for on-time delivery of specific work tasks.</p>	
<p>Number of Survey Responders: 2</p>	<p>Depth of Experience: More than 10 years (combined for all responders)</p>
<p>Benefits:</p> <ul style="list-style-type: none"> • Reduced construction time <p>Applicability:</p> <ul style="list-style-type: none"> • Not applicable for project where you know there will be delays a contractor cannot control (public controversy, etc.). 	<p>Drawbacks:</p> <ul style="list-style-type: none"> • Need for additional agency staff for administration/oversight.
<p>Potential Obstacles:</p> <ul style="list-style-type: none"> • Impacts to contractors are highly scrutinized. • Disagreements over compensable delays may be problematic. 	<p>Lessons Learned:</p> <p>“Clearly define the expectations that must be achieved to acquire the incentive.”</p>

Performance-Rated Specifications

Definition: The motivating idea behind using performance-rated specifications as part of the contracting process is that the critical need in any construction project is how it performs and that those specifications are ones the contractor must meet using whatever techniques are available to deliver the desired performance. In theory, this contracting method can lead to greater innovation and speed of delivery by putting some decisions for construction techniques into the hands of the experienced contractor.

Number of Survey Responders: 6

Depth of Experience: More than 10 years
(combined for all responders)

Benefits:

- Reduced construction time
- Reduced project cost

Applicability:

- May not be applicable for small projects.

Drawbacks:

- Need for additional agency staff for administration/oversight.
- Increased project cost

Potential Obstacles:

“The quality of the contractor’s testing personnel or consultant can vary, but this can be addressed in the project specifications.”

Lessons Learned:

- “Be knowledgeable of the construction methods and materials that you are going to allow the contractor to test. Ensure that a quality working relationship is established with the contractor.”
- “We feel it gives the contractor a good planning tool for his work, while getting good quality control also. Makes the contractor take responsibility for his own product.”

Topic Resource:

Tom Ravn
Minnesota Department of Transportation
395 John Ireland Boulevard, MS 650
St. Paul, MN 55155
651-296-6599

Value Engineering

Definition: Value engineering refers to the process of reviewing a project prior to letting in order to look for ways to improve quality, foster innovation, and lower costs. A VE study typically takes 4-5 days to perform and involves a multidisciplinary team. The VE job plan may include:

- Selecting the project for study;
- Investigating a project to find the problems;
- Brainstorming and developing alternatives to the existing design plan;
- Presenting recommendations to management;
- Approving and implementing the recommendations; and,
- Auditing the results.

Number of Survey Responders: 9

Depth of Experience: More than 10 years
(combined for all responders)

Benefits:

- Reduced construction time
- Improved public relations
- Reduced project cost

Applicability:

- May be applicable for any type of project.

Drawbacks:

- Need for outside expertise.
- It takes time to review any proposals to be sure it is in our best interest and not just the interest of the contractor.
- Need for additional agency staff for administration/oversight.
- Increased project cost.

Potential Obstacles:

- It can be hard to keep it fair to the other bidders that bid a job the way you designed it and the contractor may have underbid a little knowing he has a good chance of changing the design to lower the cost.
- Our staff need to research the proposed technique.

Lessons Learned:

- “Keep an open mind. Make all contractors bid the way you have it designed or make an addendum if there is time to change the design. Consider proposals that save time and money and see if it is a value to you.”

Topic Resources:

Jim Foldesi
St. Louis County Assistant County Engineer
100 5th Avenue West, #213
Duluth, MN 55802
218-625-3840

Michal Hanson
Mower County Engineer
1105 8th Avenue NE
Austin, MN 56007
507-437-7718

Utility Relocation Processes

Utility Relocation	
<p>Definition: Using this technique, greater responsibility is placed on the contractors to manage and conduct the utility relocation process and any other matters dealing with utilities.</p>	
<p>Number of Survey Responders: 6</p>	<p>Depth of Experience: More than 10 years (combined for all responders)</p>
<p>Benefits:</p> <ul style="list-style-type: none"> • Reduced construction time • Improved public relations • Reduced project cost <p>Applicability:</p> <ul style="list-style-type: none"> • May be applicable for any type of project. 	<p>Drawbacks:</p> <ul style="list-style-type: none"> • Increased project cost.
<p>Potential Obstacles:</p> <ul style="list-style-type: none"> • Utility reluctance 	<p>Lessons Learned:</p> <ul style="list-style-type: none"> • “Just use it.” • “Work as a team (contractors/cities-counties) for the greatest efficiency.”
<p>Topic Resources:</p> <p>Gary Bruggeman Steele County Engineer 635 Florence Avenue Owatonna, MN 55060 507-456-7472</p> <p>Jim Grube Hennepin County Engineer 1600 Prairie Drive Medina, MN 55340 763-745-7507</p>	

Traffic Control/Construction Staging

Road Closure	
<p>Definition: Occasionally total closure of a road may speed project construction. This technique utilizes that strategy.</p>	
<p>Number of Survey Responders: 15</p>	<p>Depth of Experience: More than 10 years (combined for all responders)</p>
<p>Benefits:</p> <ul style="list-style-type: none"> • Reduced construction time • Improved public relations • Reduced project cost <p>Applicability:</p> <ul style="list-style-type: none"> • Not applicable where a logical detour isn't available and if the closure will have unacceptable impacts to adjacent businesses. • Not applicable for a project where you can't close up the utility trench each evening. 	<p>Drawbacks:</p> <ul style="list-style-type: none"> • Closing a lane may have an unacceptable impact on traffic. • Increased project cost • Specialized equipment needed
<p>Potential Obstacles:</p> <ul style="list-style-type: none"> • Keeping the public off the roadway. Even with barricades and signing, drivers would go through the ditches to try to get through. • Will need additional traffic control devices, flaggers and other measures to provide sufficient safety precautions. • People living adjacent to the project need to be accommodated with access. • Detour signs have to be monitored a lot to keep traffic going. 	<p>Lessons Learned:</p> <ul style="list-style-type: none"> • "Involve law enforcement personnel for enforcement. Be prepared to turn in violators. Hire someone to sit at the end of the project to tell people they are not local traffic and cannot go through." • "Public must be adequately informed of all traffic closures, detours, or limitations." • "Safety is a major item." • "Analyze the traffic impact." • "Give it a try." • "Make sure affected parties are aware of implications." • "Use closure devices that are difficult to move."

Road Closure (cont.)

Topic Resources:

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Benson, MN 56215
320-842-5251

Don Theisen
Washington County Engineer
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Stillwater, MN 55082
651-430-4304

Curt Bolles
Olmsted County
Government Center
151 4th Street SE
Rochester, MN 55904

Lane-Rental	
<p>Definition: This technique requires charging contractors time for lane closures during construction as an incentive to speed construction time.</p>	
<p>Number of Survey Responders: 1</p>	<p>Depth of Experience: Two years</p>
<p>Benefits:</p> <ul style="list-style-type: none"> • Reduced construction time <p>Applicability:</p> <ul style="list-style-type: none"> • Most appropriate for use when traffic closures/delays result in high user costs to the public. 	<p>Drawbacks:</p> <ul style="list-style-type: none"> • Increased project cost.
<p>Potential Obstacles:</p> <p>No Response</p>	<p>Lessons Learned:</p> <p>“Constant and continuous monitoring is required to document times and enforce specifications.”</p>
<p>Topic Resource:</p> <p>Tom Foley City of Richfield 6700 Portland Avenue Richfield, MN 55423 612-891-9792</p>	

APPENDIX A:
ABSTRACTS

TABLE A-1: SUMMARY OF ABSTRACTS

Category	Title
Equipment Innovations	High Accuracy Pavement Thickness Measurement Using Ground Penetrating Radar (Nondestructive Testing for Quality Control of New Pavement).
	Ground-Penetrating Radar for Cold In-Place Recycled Road Systems.
Materials Usage	Field Performance Evaluation of Class C Fly Ash in Full-Depth Reclamation: Case History Study.
	Identification and Stabilization Methods for Problematic Silt Soils: A Laboratory Evaluation of Modification and Stabilization Additives.
	Construction and Performance of Fly Ash-Stabilized Cold In-Place Recycled Asphalt Pavement in Wisconsin.
Construction Processes	Design-Build: A Holistic Approach.
	Turnkey Design-Build Best Value Procurement: The Branch Avenue Storage Yard.
	Concrete Bridges Provide Permanent Farm Access.
Human Resource Innovations	How Effective is Your Incentive Compensation System?
Contractor/Contracting Processes	Agencies and Contractors- Working Together.
	Value Engineering and Its Rewards
	A + B Contracting
	A+B Bidding Method--Hidden Success Story for Highway Construction.
	Getting the Job Done: Contractor Incentives Save Motorists Time, Money, Headaches.
	Comparison of Contracting Strategies for Reducing Project Construction Time. Final Report.
	NCHRP Guidelines Detail Innovative Contracting Methods.
	Performance Related Specifications: An Industry Perspective (with discussion).
	Strategies Used by State DOT'S to Accelerate Highway Construction Projects. In: Compendium: Papers on Advanced Surface Transportation Systems, 2002.
	Method to Model Performance Relationships and Pay Schedules.
	Proceedings of the Workshop on International Transit Turnkey and Joint Development. Session 4: Value Engineering, Design and Construction.

Category	Title
Contractor/Contracting Processes	Incentive/Disincentive Contracts: Perceptions of Owners and Contractors.
	Implementation of New Ride Quality Specification in Maryland: Incentive-Based Profile Specification.
	Performance-Based Contracting for the Highway Construction Industry: An Evaluation of the Use of Innovative Contracting and Performance Specification in Highway Construction.
Project Management Techniques	Resource-Activity Critical-Path Method for Construction Planning.
	Project Scheduling: Methods and Phases Involved in Planning a Schedule.
	Window Analyses of Compensable Delays.
Advanced Technology Applications	Improved Design Review Through Web Collaboration .
	Web-Based Information Management System for Construction Projects.
	Web-Based Rural Road Asset- Management System.
	Systems Integration: An Effective Project Management Tool for a Design-Build-Operate-Maintain Rail Project.
	States Turn on to Web for Highway Bidding .
	Emphasizing Design/Build.
	A New Paradigm in Communication: The Web-Enabled Construction Team.
	Web-Based Information Management System for Construction Projects.
	Selection and Implementation of Web-Based Project Management and Technical Collaboration Systems for Port Development Use.
	Streamline and Save \$\$.
	Improving the Delivery of Roadworks through Online Remote Construction Management
	AEC Internet Project Management Tools: The Good, the Bad, and the Future.
	Construction Baseline Productivity: Theory and Practice.
A New Spin on Bid Sets.	
Traffic Control/Construction Staging	Robert Frost Meets Woody Allen in the Work Zone.
	Lane Rental --Innovative Way to Reduce Road Construction Time.
	Strategies Used by State DOT'S to Accelerate Highway Construction Projects. In: Compendium: Papers on Advanced Surface Transportation Systems, 2002.

EQUIPMENT INNOVATIONS

HIGH ACCURACY PAVEMENT THICKNESS MEASUREMENT USING GROUND PENETRATING RADAR (NONDESTRUCTIVE TESTING FOR QUALITY CONTROL OF NEW PAVEMENT).

Ground Penetrating Radar (GPR) interpretation technology developed through the Strategic Highway Research Program (SHRP) was used to nondestructively determine pavement thickness on new pavements. The new pavements were **bid** per square yard (SY) of pavement surface area as either portland cement concrete pavement (PCCP) or full depth asphaltic concrete (AC). Since **bid** per SY, the pavements must meet Missouri specifications requiring the pavement to be no more than 0.2 in. thin of the plan depth. Missouri Department of Transportation (MoDOT) contracted with Pavement Systems Engineering and INFRASENSE Inc. to obtain and compare GPR data on the pavement thickness with the cores commonly taken for quality control and assurance by MoDOT. It was believed that GPR with good interpretation **software** and employing some special techniques could be capable of measuring to the 0.2 in. tolerance needed and in the future replace current coring practices (destructive testing) with GPR testing (nondestructive).

AU: Wenzlick-J; Scullion-T; Maser-KR

CA: Missouri Department of Transportation, P.O. Box 270, 105 West Capitol Avenue, Jefferson City, MO, 65102, USA; Federal Highway Administration, 400 7th Street, SW, Washington, DC, 20590, USA

SO: 1999/02. pp102

PY: 1999

RN: Report Number: RDT 99-003,; Report Number: RI96-11,; Report Number: Final Report

GROUND-PENETRATING RADAR FOR **COLD IN-PLACE RECYCLED** ROAD SYSTEMS.

Due to a number of positive economic factors in the Saskatchewan economy, commercial truck traffic on many roads there has greatly increased in recent years. As a result, the Saskatchewan Dept. of Highways and Transportation (SDHT) is examining **cold in-place recycling** as a rehabilitation alternative for strengthening thin-paved roads. However, different **construction** practices and years of maintenance and rehabilitation have led to many of these thin-paved roads having a variable structural composition. The effect of in situ variability on **cold in-place recycle** designs is further exacerbated by the inherent sensitivity of stabilizers and/or concentrated chemicals when integrated into different road materials. As a result, the materials and structural design of **cold in-place recycled** thin-paved road systems can be highly uncertain. Ground-penetrating radar (GPR) has been identified as a diagnostic tool that can accurately quantify in situ structural composition and help reduce the uncertainty associated with the material/structural design of **cold in-place recycled** roads. This paper summarizes the principles of GPR, discusses the use of GPR as an engineering diagnostic tool for **cold in-place recycling** of thin-paved roads, and presents two pilot case studies conducted by the SDHT that demonstrate the capability of GPR to mitigate the uncertainty associated with **cold in-place recycled** road systems.

AU: Berthelot-C; Scullion-T; Gerbrandt-R; Safronetz-L
SO: Journal of Transportation Engineering. 2001/07. 127(4) pp269-274 (8 Phot., 6 Fig., 1 Tab., Refs.)
PB: American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA, 20191-4400, USA
PY: 2001

MATERIALS USAGE

FIELD PERFORMANCE EVALUATION OF CLASS C FLY ASH IN FULL-DEPTH RECLAMATION: CASE HISTORY STUDY.

Class C **fly ash** is a coal combustion product from lignite or subbituminous coal obtained as a result of the power generation process. In recent years, efforts were taken to incorporate self-cementing **fly ash** into **full-depth** reclaimed (FDR) material to improve the structural capacity of asphalt pavement base layers. In this study, existing asphalt pavement in County Trunk Highway (CTH) JK in Waukesha County, Wisconsin, was pulverized **in place** and mixed with **fly ash** and water to function as a base course. To evaluate the contribution of **fly ash** to the structural performance of the pavement, nondestructive deflection tests were performed with a KUAB 2m falling weight deflectometer on the outer wheelpath four days and one year after **construction**. The modulus of **fly ash**-stabilized FDR base course increased by 49 percent, one year after **construction**. The structural capacity of the **fly ash**-stabilized FDR base course in CTH JK also has increased significantly as it ages, because of the pozzolanic reaction. The results of this study indicate that the FDR mixes with self-cementing **fly ash** may provide an economical method of **recycling** flexible pavements and reduce the need for expensive new granular base courses for road **reconstruction**.

AU: Wen-H; Tharaniyil-MP; Ramme-B; Krebs-S

SO: Transportation Research Record. 2004. (1869) pp41-46 (2 Phot., 2 Fig., 4 Tab., 16 Ref.)

NT: This paper appears in Transportation Research Record No. 1869, Pavement Rehabilitation, Strength and Deformation Characteristics, and Surface Properties 2004.

PB: Transportation Research Board, 500 Fifth Street, NW, Washington, DC, 20001-, USA

PY: 2004

RN: 0309094631

IDENTIFICATION AND STABILIZATION METHODS FOR PROBLEMATIC SILT SOILS: A LABORATORY EVALUATION OF MODIFICATION AND STABILIZATION ADDITIVES.

The instability and pumping response of non-plastic, high silt (and fine sand) soils was investigated. Common **reagents**, i.e., **lime**, **lime-fly ash**, portland **cement**, and slag **cement** were included as admixtures with three high silt (and fine sand) soils. A series of laboratory tests simulated the moisture and loading conditions for 1) subgrade **construction** operations and 2) longer term, in service support of the completed pavement. Comparisons were based on the performance of mixtures with equal material costs. The improvements were found to vary with the **reagent's** character, the mix proportion, and the role required, i.e., **construction** aid (modification) or in service performance (stabilization). The **reagents** act as a **drying agent** during **construction** but, for the percentages used, produced only a small reduction in the original moisture content of the natural soil and only small increases in the plastic or cohesive character. For initial moisture contents up to +4 percent wet of optimum, smaller levels of **reagents** were sufficient to retard or eliminate deformation under low cyclic loads, but extremely wet soils (4 to 8 percent of optimum) required larger volumes of **reagents**. For long term

stability and greater increases in strength, the **cements** followed by the **lime-fly-ash** produced the best results. Stabilization mixtures with **reagents** producing **cementitious** products (portland **cement**) reduced the sensitivity of the soil to moisture changes.

AU: McManis-K

CA: University of New Orleans, Department of Civil and Environmental Engineering, New Orleans, LA, 70122-, USA; Louisiana Transportation Research Center, 4101 Gourrier Avenue, Baton Rouge, LA, 70808-4443, USA; Federal Highway Administration, 400 7th Street, SW, Washington, DC, 20590, USA

SO: 2003/07. 9904-0212 pp74

PY: 2003

RN: Report Number: FHWA/LA.02/371,; Report Number: Final Report; Contract/Grant Number: State Project No. 736-99-0691; Contract/Grant Number: LTRC Project No. 99-4GT

CONSTRUCTION AND PERFORMANCE OF FLY ASH-STABILIZED COLD IN-PLACE RECYCLED ASPHALT PAVEMENT IN WISCONSIN.

Cold in-place recycling (CIR) is a common rehabilitation practice used in Wisconsin to improve the ride quality and structural capacity of deteriorated asphalt pavements. In recent years, increased emphasis has been placed on incorporating stabilizers into the CIR materials to improve the structural capacity of the CIR base layer. This improvement can serve to increase the performance life of the completed pavement or to allow for a reduced hot-mix asphalt (HMA) surface thickness. The city of Mequon, Wisconsin, included asphalt emulsion and **fly ash** CIR stabilization over a portion of its CIR projects in 1997. Presented are the findings relating to the constructability of the **fly ash**-stabilized CIR pavement as well as performance trends for the CIR pavements based on distress and deflection testing results. CIR is a common rehabilitation practice used in Wisconsin to improve the ride quality and structural capacity of deteriorated asphalt pavements. In one type of CIR application, existing HMA layers are pulverized, graded, and compacted, then used as a base layer for a new HMA surface. The pulverization process is completed to provide uniformity of support to the HMA surface and to significantly reduce or eliminate the occurrence of reflection cracking of the HMA surface. In most CIR applications, pulverization is completed through the full thickness of the existing HMA layers, as well as through the top 25 to 50 mm of aggregate base. Penetration into unbound aggregate base materials aids in cooling of the bits on the pulverizer mandrel. After pulverization, graders typically are used to spread the materials to the desired width and shape. Compaction is achieved by using vibrating steel drum and pneumatic-tire rollers. The moisture content of the CIR materials is adjusted, as necessary, by surface spraying from a water tanker truck.

AU: Crovetti-JA

SO: Transportation Research Record. 2000. (1730) pp161-166

NT: This paper appears in Transportation Research Record No. 1730, Issues in Pavement Design and Rehabilitation.

PB: Transportation Research Board, 2101 Constitution Avenue, NW, Washington, DC, 20418, USA

PY: 2000

RN: 0309067324

Construction Processes

DESIGN BUILD : A HOLISTIC APPROACH.

With parking structures' growing prominence in their related projects, **design-build**, versus design-bid-build using the lowest bidder, is gaining popularity. It gives a single source for accountability and increases efficiency by incorporating many elements into the project while it is still at the "paper" stage, when changes cost less to make. Pre-cast structural elements are preferred because of the tight quality controls possible in a manufacturing setting. Also, it is easier to anticipate future needs such as expansion in **design-build** approaches.

AU: Izenon-K

SO: Parking Today. 2002/04. 7(4) pp38-41

PB: Bricepac, Inc., 12228 Venice Boulevard, Suite 541, Los Angeles, CA, 90066-, USA

PY: 2002

TURNKEY DESIGN-BUILD BEST VALUE PROCUREMENT: THE BRANCH AVENUE STORAGE YARD.

Publicly funded **construction** project owners have continuously attempted to manage **construction** programs to achieve the best value for expanded public funds, while completing a project as expeditiously as feasible to provide the best possible service to the public. This paper looks at WMATA's (Washington Metropolitan Area Transit Authority) new approach, "Three-step Combination Approach: **Turnkey, Design-Build, Best Value Procurement**", to achieve this end.

AU: Ghosh-SK

CA: American Public Transit Association, 1201 New York Avenue, NW, Washington, DC, 20005-6141, USA

SO: Conference Title: 1999 Commuter Rail/Rapid Transit Conference, Proceedings. Location: Toronto, Canada. Sponsored by: American Public Transit Association. Held: 19990522-19990527. 1999. pp139-142

PY: 1999

CONCRETE BRIDGES PROVIDE PERMANENT FARM ACCESS.

This article describes Firth Stresscrete's new inexpensive and versatile **bridging** system, using a modified double tee flooring unit. These bridges have the following features: (1) they are designed to Works Corps Highway Bridge Design Brief specification; (2) they are designed to meet a variety of specific loadings; (3) they require no maintenance; (4) units are relocatable and thus resaleable; (5) units can be adapted to skewed angles, shorter spans and various handrail or wheel stop attachments; (6) there is minimal interruption to normal work during their rapid installation; (7) bridges are fully guaranteed and are completed with a registered engineer's design certificate; (8) pre-cast abutments can provide substantial savings at remote locations. Several district councils in New Zealand have benefited from this new form of **bridging**. For example, Firth Stresscrete has supplied Piako County Council with three bridges, which have been found to be cost-effective, have long-term advantages, and cause minimal delays during their placement.

SO: NEW ZEALAND CONCRETE **CONSTRUCTION**. 1990/05. 34 pp48-9

PB: CEMENT AND CONCRETE ASSOCIATION OF NEW ZEALAND, PRIVATE BAG,
PORIRUA, UNITED KINGDOM

PY: 1990

Human Resource Innovations

HOW EFFECTIVE IS YOUR INCENTIVE COMPENSATION SYSTEM?

Recent surveys of the consulting engineering industry have found that more than 75 percent of U.S. engineering services firms provides some form of incentive compensation. Incentive compensation is a proactive, defined program in which staff members know up front what the objectives are and what the rewards will be. Bonus programs, by contrast, do not have clearly defined objectives, and rewards are typically discretionary. Bonus programs are characteristically reactive and after the fact. Research shows that monetary reward ranks a solid fifth in importance to people's job satisfaction. Four other factors that are more likely to cause job discontent are company policy and administration, supervision, relationship with supervisor, and work conditions. Research also shows that the top motivators are achievement, recognition, the work itself, and responsibility. A study of almost 1,500 workers across all skill sectors revealed some intriguing insights. Fully 80 percent of those who were on individual incentive pay systems would rather have been on a different system. The study also showed that the most highly committed and best-performing workers are rewarded predominantly through merit pay or individual incentives that recognize individual achievement. A sidebar highlights four past articles published in this journal that offer more information on compensation.

Index Terms:

Personnel management, Personnel retention, Personnel motivation, Salaries, Incentives, Disincentives, Job satisfaction, Personnel performance, Pay, Wages, Engineers, Consultants

Available from:

[American Society of Civil Engineers](#)
1801 Alexander Bell Drive
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USA

Author(s): Gores, J

Language: English

Journal Title: Journal of Management in Engineering

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Pagination: pp 29-33

Publisher/Corporate Author(s):

[American Society of Civil Engineers](#)
1801 Alexander Bell Drive
Reston, VA 20191-4400
USA

Contractor/Contracting Processes

AGENCIES AND CONTRACTORS- WORKING TOGETHER.

As an alternative to the traditional low-bid method for choosing a contractor, state DOTs and transportation researchers are looking at ways that build in more cooperation and collaboration to speed the procurement and construction process and minimize delays and disputes over changes in designs and costs. Design-build is one method gaining in popularity. It uses a lump-sum bid and eliminates middlemen consultants between the agency and the contractor. It also joins the contractor to the designer. However, political and legal restraints to ensure against collusion and conflicts of interest need to be addressed in many cases. Other processes being tried out include A + B bidding, which rewards contractors for cutting down on projects' completion times; pre-qualification of contractors and consultants to speed acceptance of bids; and performance specification, which sets objectives and leaves their achievement to the contractor.

AU: Stidger-RW

SO: Better Roads. 2002/03. 72(3) pp52-55

PB: James Informational Media, Incorporated, 2720 South River Road, Suite 126, Des Plaines, IL, 60018-, USA

PY: 2002

VALUE ENGINEERING AND ITS REWARDS

The **value engineering** clause in most construction contracts is often ignored because it involves design change in a short time. However, **value engineering** is necessary because of the complex and often adversarial relationship between the designer and the contractor. In this paper, the author, a design manager and geotechnical engineer, recounts her experiences in seeking to revise plans on projects before the start of construction. The projects involved were a design/build rail project, a design/build bus depot project, a design/bid/build project involving the reconstruction of a 100-year-old bridge, and a design/bid/build project to widen the Long Island Expressway. In all these projects, the author encountered initial resistance to her redesign recommendations, but ultimately derived satisfaction from having her **value engineering** solutions accepted.

AU: Bedian-MP

SO: Leadership and Management in Engineering. 2002/04. 2(2) pp36-37

PB: American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA, 20191-4400, USA

PY: 2002

A + B CONTRACTING

The new connector between westbound 80 and eastbound 580 in northern California's East Bay used a new method of contracting and a close working relationship between the California Department of Transportation (Caltrans) and the contractor. The method is known as **A+B** contracting, where contractors bid not just on price but the number of working days required. Each day of work was the equivalent of \$20,000 in imposed user costs due to the delay during construction. The time for the project was one-third of Caltrans' estimate. Additional coordination with a nearby project enabled work to go on for two shifts a day, seven days a week, which also saved time and money.

AU: Jones-L; Vargas-R

SO: California Department of Transportation Journal. 2002/01. 2(4) pp22-25

NT: January-February 2002

PB: California Department of Transportation, 1120 N Street, Room 1200, Mail Stop 49, Sacramento, CA, 95814, USA

PY: 2002

A+B BIDDING METHOD--HIDDEN SUCCESS STORY FOR HIGHWAY CONSTRUCTION.

In the last 10 years, state departments of transportation across the nation have experimented with the **A+B** bidding method. Simply stated, contractors bid on the cost (part A) and on the time (part B), and the lowest combined bidder (**A+B**) is awarded the work. This paper analyzes 101 projects awarded by the **A+B** method and then compares the results to the cost and the time of similar projects awarded by conventional means (cost only). Results indicate that substantial savings in construction time are achieved when using the **A+B** method, with nearly equal costs. This is achieved by better planning and management of motivated contractors using the time element as part of their bidding strategy. Case studies are included to demonstrate the results.

AU: Herbsman-ZJ

SO: Journal of Construction Engineering and Management. 1995/12. 121(4) pp430-437

PB: American Society of Civil Engineers, 345 East 47th Street, New York, NY, 10017-2398, USA

PY: 1995

GETTING THE JOB DONE: CONTRACTOR INCENTIVES SAVE MOTORISTS TIME, MONEY, HEADACHES.

The Texas Transportation Institute initiated research into the advantages and disadvantages of contractor incentives. The goal of the research was to determine contracting strategies that would result in the least total cost to motorists during construction. This article describes several types of contract strategies, including: low-bid contract, Critical Path Method schedule, **A+B** bidding, and others. Researchers recommend that the use of incentives/disincentives be reserved for specific situations that meet certain criteria.

AU: McFarland-F

SO: TEXAS TRANSPORTATION RESEARCHER. 1994. Summer 30(2) pp6-7

PB: Texas Transportation Institute, Texas A&M University, College Station, TX, 77843-3135, USA

PY: 1994

COMPARISON OF CONTRACTING STRATEGIES FOR REDUCING PROJECT CONSTRUCTION TIME. FINAL REPORT.

The objectives of this study were: to develop criteria for evaluating alternative contracting strategies and make comparisons of the advantages and disadvantages of these strategies for different types of projects and situations; to evaluate ongoing and completed projects that use alternative bidding strategies and high liquidated damages based partially on user costs, and other alternatives for reducing project completion times; to evaluate techniques for estimating user costs during construction for different types of projects and situations. The HEEM-III and QUEWZ computer programs were used to estimate motorist costs for use in liquidated damages and for costs of lane closure. These programs were used to estimate user costs for a variety of added-capacity construction projects. Since funds are limited for construction projects, it is recommended that only 25 percent of calculated user costs be used in liquidated damages. Case studies emphasized Texas incentive/disincentive projects and other large, urban projects with emphasis on **A+B** bidding and use of a special CPM provision where contractors are not paid progress payments unless they meet contract provisions. In **A+B** bidding, contractors bid not only construction cost but also contract completion time, and both are considered in awarding the contract. At this time, it is recommended that incentive/disincentive provisions, with or without **A+B** bidding, should not be used routinely in Texas. They should be reserved for special cases of great urgency, of relatively short duration, with a clean set of plans, and with little chance of field changes. For all projects, but especially for large projects with heavy traffic in urban areas, liquidated damages should include user costs; so should incentives/disincentives. It is recommended that CPM scheduling and monitoring be used on large, critical projects. It is also recommended that **A+B** bidding be tried on a limited basis as experimental projects, when stated conditions are met and when there is a need to reduce project completion time.

AU: McFarland-WF; Kabat-RJ; Krammes-RA

CA: Texas Transportation Institute, Texas A&M University, College Station, TX, 77843, USA; Texas Department of Transportation, Office of Research and Technology Transfer, PO Box 5051, Austin, TX, 78763, USA; Federal Highway Administration, 400 7th Street, SW, Washington, DC, 20590, USA

SO: 1994/03. 9109-9308 pp83

NT: Research study title: New Evaluations of Liquidated Damages, Motorist Liquidated Damages, and Percent Retainage.

PY: 1994

RN: Report Number: FHWA/TX-94/1310-1F; Report Number: Res Rept 1310-1F; Report Number: TTI: 0-1310; Contract/Grant Number: Study 0-1310

NCHRP GUIDELINES DETAIL INNOVATIVE CONTRACTING METHODS.

The National Cooperative Highway Research Program (NCHRP) commissioned researchers to explore innovative alternatives to traditional contracting methods and to produce comprehensive implementation guidelines for their use. The guidelines outline three innovative contracting methods: warranty, multiparameter, and best value contracting. Each method focuses on a different aspect of cost-effective contract management, but all are intended to fulfill the same goals. Warranty contracting includes an extended warranty that places responsibility for product performance on the contractor, generating a longer lasting product and lower overall maintenance costs. In multiparameter contracting, agencies determine contract winners based on the lowest combination of cost, time, and other parameters. Best value contracting focuses on such factors as technical excellence, management capability, past performance, and personnel qualifications.

AU: Anderson-S

SO: Texas Transportation Researcher. 2000. 36(2) pp7

PB: Texas Transportation Institute, Texas A&M University, College Station, TX, 77843-3135, USA

PY: 2000

PERFORMANCE RELATED SPECIFICATIONS: AN INDUSTRY PERSPECTIVE (WITH DISCUSSION).

Specifications are used to convey information concerning desired products from a buyer to a seller or potential seller, they are used as a basis for competitive bidding for the delivery of products, and they are used to measure compliance to contracts. There are four types of specifications generally recognized in the construction industry: (1) proprietary product, (2) method, (3) end-result; and (4) performance. The current general state of highway specifications is represented by end-result specifications. In the future, efforts will be made to mathematically tie the end-result quality characteristics for the product to its performance; these will be referred to as performance-related specifications.

AU: Newcomb-DE; Hughes-C (Discusser); Christensen-D (Discusser); Hugo-F (Discusser); Ruth-B (Discusser); Page-G (Discusser); Monismith-C (Discusser)

SO: Conference Title: Asphalt Paving Technology 2001. Location: Clearwater Beach, Florida.

Sponsored by: Association of Asphalt Paving Technologists. Held: 20010319-20010321.

Journal of the Association of Asphalt Paving Technologists. 2001. 70 pp821-836

NT: Additional discusser (only six discussers can be listed in the discusser field): Dukatz, E.

PB: Association of Asphalt Paving Technologists, 400 Selby Avenue, Suite I, St Paul, MN, 55102-, USA

PY: 2001

STRATEGIES USED BY STATE DOT'S TO ACCELERATE HIGHWAY CONSTRUCTION PROJECTS. IN: COMPENDIUM: PAPERS ON ADVANCED SURFACE TRANSPORTATION SYSTEMS, 2002.

Every day motorists are faced with driving through construction work zones throughout the state of Texas. Some construction projects due to their location and type of traffic control increase congestion and delays. There is a need to speed up construction on all types of projects using accelerated construction strategies. To determine the extent of accelerated construction strategies usage in the United States, the author conducted a literature review and a state department of transportation (DOT) survey. The results of the survey indicate that most states that responded are using accelerated construction strategies in some form or fashion, especially on large projects that impact the highway travel lanes. Based on the research, the following techniques were determined to be applicable to address the problem of accelerating construction time: calendar day definition for working day; **incentive** using contract administrative cost; **milestones** with **incentive/disincentive** (I/D); substantial completion I/D; lane rental **disincentive**; A+B provision; variable lead time; and design-build. Each of the techniques was classified by level of acceleration; however, the most widely used and most liked by DOTs and **contractors** as well, are the I/D techniques. They are win-win situations for both parties and they result in shorter construction times and monetary gain to **contractors**. Several techniques were applied to example projects in the Atlanta District in order to test the guidelines developed from this report. The results indicate that, depending on the type of project, size and location, there is always going to be an available technique that can be utilized to accelerate it. Guidelines for various levels of acceleration were developed from this report and the results of these guidelines appear to be applicable to all projects depending on the level of acceleration desired and warranted by a particular project.

AU: Ibarra-C; Dudek-CL (Editor)

CA: Texas Transportation Institute, Texas A&M University, College Station, TX, 77843-3135, USA; Southwest Region University Transportation Center, Texas Transportation Institute, Texas A&M University, College Station, TX, 77843-3135, USA

SO: 2002/08. pp83-125

NT: This study was supported by a grant from the U.S. Department of Transportation, University Transportation Centers Program.

PY: 2002

RN: Report Number: SWUTC/02/473700-00003-4; Contract/Grant Number: DTRS99-G0006

METHOD TO MODEL PERFORMANCE RELATIONSHIPS AND PAY SCHEDULES.

Performance-related specifications require mathematical models to link construction quality to expected life and, ultimately, to value expressed in the form of pay schedules. Although ongoing research efforts continue to advance the state of the art, the type of data needed to develop accurate and precise models may not become available for several years. In the interim, present engineering and mathematical knowledge can be used to create rational and practical models that will perform effectively until better models are available. Several examples are presented to illustrate how both analytical data and survey data can be used to develop realistic performance

models and pay schedules useful for statistical construction specifications. The issue of the proper method that can be used to combine the effects of multiple deficiencies is also addressed.

AU: Weed-RM

SO: Transportation Research Record. 2000. (1712) pp117-124

NT: This paper appears in Transportation Research Record No. 1712, Construction 2000.

PB: Transportation Research Board, 2101 Constitution Avenue, NW, Washington, DC, 20418, USA

PY: 2000

RN: 0309066913

PROCEEDINGS OF THE WORKSHOP ON INTERNATIONAL TRANSIT TURNKEY AND JOINT DEVELOPMENT. SESSION 4: **VALUE ENGINEERING**, DESIGN AND CONSTRUCTION.

Session highlights are as follows: (1) **Value engineering** (VE), quality control (QC) and quality assurance (QA) are close cousins. VE can result in considerable cost savings with no loss in QC/QA. (2) VE is comprehensive and includes the design, construction and procurement of major transit investments. The savings resultant from VE are frequently many times the costs of the VE studies. (3) Turnkey contracting can be a form of VE. Requirements for VE studies in transit turnkey projects are subject questions concerning the necessity in the context of the prevailing incentives. (4) The considerable cost savings generated by VE are typically shared between the owner and the contractors. Contractors are generally not rewarded for VE savings they identify in their work. (5) The incentives for VE in the design phase of conventional and turnkey projects are not certain. There must be incentives for the designer to engage in VE. (6) VE in the context of turnkey is still evolving. Just as turnkey is many different approaches with no single established practice, VE will have to adjust to the requirements, opportunities, incentives and constraints resulting from turnkey approach and procurement.

AU: Fernandez-NI; Luglio-TJ Jr.; Goff-AP; Waesche-F-III; Turpin-F; Gonzales-S

SO: Conference Title: Workshop on International Transit Turnkey and Joint Development.

Location: San Juan, Puerto Rico. Sponsored by: Transportation Research Board, National Research Council; Federal Transit Administration, U.S. Department of Transportation; and Puerto Rico Department of Transportation and Public Works. Held: 19961015-19961019.

Transportation Research Circular. 1998/03. (483) pp39-42

PB: Transportation Research Board, 2101 Constitution Avenue, NW, Washington, DC, 20418, USA

PY: 1998

INCENTIVE/DISINCENTIVE CONTRACTS: PERCEPTIONS OF OWNERS AND CONTRACTORS.

Incentive/disincentive (I/D) contracting has developed from basic cost- and profit-sharing arrangements between an owner and a **contractor**. To motivate the **contractor** to put in an extra effort to realize one or more project objectives of an accelerated, costly, and complex undertaking, the owner may offer an award to the **contractor**. The owner may also threaten the **contractor** with a penalty if the objectives are not met. This paper reviews the fundamental I/D arrangements in contracting literature. Then, results are reported of a survey conducted on a sample of Illinois Department of Transportation (IDOT) highway contracts that included I/D provisions. The survey investigates whether there exists an agreement or disagreement between IDOT's and the **contractors'** perceptions of I/D contract provisions. The findings reveal how I/D contract **milestones** are established, how they are executed, what kind of work practices the **contractor** uses to fulfill I/D targets and how the contracting parties perceive I/D contracts' effectiveness as opposed to non-I/D contracts. Certain issues pointed out by the respondents as problematic and in need of further refinement in I/D applications are also highlighted. The survey questionnaire is appended.

AU: Arditi-D; Yasamis-F

SO: Journal of Construction Engineering and Management. 1998/09. 124(5) pp361-373

PB: American Society of Civil Engineers, 345 East 47th Street, New York, NY, 10017-2398, USA

PY: 1998

IMPLEMENTATION OF NEW RIDE QUALITY SPECIFICATION IN MARYLAND: INCENTIVE-BASED PROFILE SPECIFICATION.

The Maryland State Highway Administration (MDSHA) has developed a new, performance-based construction specification for ride quality. The new specification was developed as a strategy to meet an objective in the MDSHA business plan that requires the percentage of smoother pavements to increase statewide over the next 5 years. The new specification allows the use of inertial profiler testing devices as well as California-style rolling-wheel profilographs and includes incentive- and disincentive-based pay adjustments for asphalt paving. The specification includes an innovative approach to establishing acceptable ride quality values that considers many of the factors that affect the ability to construct a smooth riding surface. In addition, the specification includes clear identification of pay adjustments that are calculated using a software application developed by MDSHA. The new specification is to be included in all projects advertised after July 1, 2001, and implementation involves efforts to train construction project personnel in the use of the specification. Future implementation efforts phase out the use of the California-style profilograph by 2004. The efforts completed to date to develop the new specification are described, and highlights of the new specification are provided.

AU: Stephanos-P; Withee-J; Andrews-J
SO: Transportation Research Record. 2003. (1860) pp159-167
NT: This paper appears in Transportation Research Record No. 1860, Pavement Assessment, Monitoring, and Evaluation 2003.
PB: Transportation Research Board, 500 Fifth Street, NW, Washington, DC, 20001-, USA
PY: 2003
RN: 0309085977

PERFORMANCE-BASED CONTRACTING FOR THE HIGHWAY CONSTRUCTION INDUSTRY: AN EVALUATION OF THE USE OF INNOVATIVE CONTRACTING AND PERFORMANCE SPECIFICATION IN HIGHWAY CONSTRUCTION.

This project synthesizes information on the shortcomings and limitations of traditional methods of highway construction and maintenance contracting, and identifies new and innovative alternatives. The findings are based on a literature review and a survey of officials of the state departments of transportation, representatives from the highway construction industry and experts in highway construction management. Various contractor methods for highway construction projects are discussed, including traditional design-bid-build as well as innovative methods. Specifications for highway construction, relationships between specifications and contracting methods, and current practices by state departments of transportation are presented. Case studies were used to illustrate the impacts of innovative contracting on project cost, time and quality. Findings suggest that any contracting approach that departs from the traditional design-bid-build approach results in construction time reductions, lower costs, and comparable or better quality. Short warranties are the most common form of innovative contract for highway construction projects. It was concluded that performance-based specifications are easier to implement with innovative contracting approaches in which the risks of ensuring a high quality product are shifted to the contractor. Recommendations to encourage the use of innovative contracting approaches are provided.

AU: Carpenter-B; Fekpe-E; Gopalakrishna-D
CA: Battelle Memorial Institute, 505 King Avenue, Columbus, OH, 43201, USA; Koch Industries, Incorporated, 655 15th Street, NW, Suite 445, Washington, DC, 20005-, USA
SO: 2003/02. pp49
PY: 2003
RN: Report Number: Final Report

PROJECT MANAGEMENT TECHNIQUES

RESOURCE-ACTIVITY CRITICAL-PATH METHOD FOR CONSTRUCTION PLANNING.

In this paper, a practical method is developed to address the fundamental matters and limitations of existing methods for critical-path method (CPM) based resource scheduling, which are identified by review of prior research in resource-constrained CPM scheduling and repetitive scheduling. The proposed method is called the resource-activity critical-path method (RACPM), in which: 1) the dimension of resource in addition to activity and time is highlighted in project scheduling to aid in coordination of activity planning and resource planning; 2) the start/finish times and the floats are defined as resource-activity attributes based on the resource-technology combined precedence relationships; and (3) the “resource critical” issue that has long baffled the **construction** industry is clarified. The RACPM is applied to an example problem taken from the literature for illustrating the algorithm and comparing it with the existing method. A sample application of the proposed RACPM for planning a footbridge **construction** project is also given to demonstrate that practitioners can readily interpret and utilize a RACPM schedule by relating the RACPM to the classic CPM. The RACPM provides schedulers with a convenient vehicle for seamlessly integrating the technology/process perspective with the resource use perspective in **construction** planning. The effect on the project duration and activity floats of varied resource availability can be studied through running RACPM on different scenarios of resources. This potentially leads to an integrated scheduling and cost estimating process that will produce realistic schedules, estimates, and control budgets for **construction**.

AU: Lu-M; Li-H

SO: Journal of **Construction** Engineering and Management. 2003/07. 129(4) pp412-420

PB: American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA, 20191-4400, USA

PY: 2003

PROJECT SCHEDULING: METHODS AND PHASES INVOLVED IN PLANNING A SCHEDULE.

Project schedules are important and highly useful tools for civil engineers. The preparation of schedules allows for detailed planning of work activities and provides a device for communicating critical dates and activities to clients, consultants, and the internal project team. In addition, schedules provide a tool to help program the project, test alternative approaches, and evaluate job performance. Many scheduling methods exist, and each has its own strengths and weaknesses. Several include full wall scheduling, bar charts, **critical path** method (CPM), and program evaluation and review technique (PERT). Networking a project involves dividing the job into units or work that is relevant to the people for whom the network is being prepared. There are three phases of networking: planning, scheduling, and monitoring. For many networking applications, simple personal computer-based software is available.

AU: Birnberg-H
SO: Civil Engineering News. 1999/03. 11(2) pp58-60
PB: Civil Engineering News, Incorporated, 1255 Roberts Boulevard, Suite 230, Kennesaw, GA, 30144-, USA
PY: 1999

WINDOW ANALYSES OF COMPENSABLE DELAYS.

The identification and analysis of compensable delays become necessary on most **construction** projects. Although there are several different analytical techniques available, the window method of contemporaneously analyzing delays is the most realistic. The reasons for the superiority of the window method are discussed. The possible results of a window analysis are evaluated and graphically presented. Also discussed is a correction, or intermediate step, in the method, necessary to avoid incorrect findings of false concurrency, and the proper method for handling apportionable and non-apportionable delays. Finally, an argument is made that the burden of proving non-compensable delays, assuming a proper window analysis of compensable delays by a contractor, should be borne by the owner.

AU: Finke-MR
SO: Journal of **Construction** Engineering and Management. 1999/03. 125(2) pp96-100
PB: American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA, 20191-4400, USA
PY: 1999

Advanced Technology Applications

IMPROVED DESIGN REVIEW THROUGH **WEB COLLABORATION**.

An in-depth analysis of the impact of **Web collaboration** has shown that it is a very effective medium for conducting design reviews and offers many benefits over traditional manual methods of comment collection and resolution. Findings from two federal agencies have shown a significant reduction in both time required to conduct a design review and number of required participating parties. An economic analysis of the impact of **Web collaboration** on the design review process done for U.S. Corps of Engineers projects shows that using the **Web** for design review **collaboration** provides a 73 percent savings in meeting time and travel cost.

AU: East-EW; Kirby-JG; Perez-G

SO: Journal of Management in Engineering. 2004/04. pp51- 55

PB: American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA, 20191-4400,

WEB-BASED INFORMATION MANAGEMENT SYSTEM FOR CONSTRUCTION PROJECTS.

Construction project managers must systematically organize a large volume of incoming information while responding to daily requests on project-related matters. This paper presents a **web**-based project information management system (**WebPIM**) that can be used in civil engineering applications, particularly in **construction project management**. All project information in the proposed system is centralized in a **project database** residing in the project server, instead of being distributed to many different locations. By utilizing the latest **web** technology, the system works as an information platform for all design and **construction** participants of a **construction** project throughout the project's life cycle. A prototype model is designed in this paper to illustrate the application of the proposed system and the hardware and **software** requirements for the intended application. Data transfer speed and security are addressed. The **WebPIM** system developed here can be used as a platform for expanding to other project functions such as project scheduling, material procurement and remote site investigation.

AU: Lam-HF; Chang-T-YP

SO: Computer-Aided Civil and Infrastructure Engineering. 2002/07. 17(4) pp280-293

PB: Blackwell Publishers, 350 Main Street, Malden, MA, 02148-, USA

PY: 2002

WEB-BASED RURAL ROAD ASSET-MANAGEMENT SYSTEM.

The Department of Accelerated Rural Development in Thailand has undergone major structural reforms according to the direction of National Economic and Social Development Plan 9, which decentralizes government authority into subdistrict levels. The goals for subdistrict level **management** are to improve the quality of life and the living standard through economic and social development in rural areas. By restructuring the maintenance practice and policy to complement the new orientation of the plan and to enable the proper planning of rural road asset

maintenance activities, a systematic rural road asset-**management** system was implemented to achieve the goal of the subdistrict and central **management**. A web-based technology was used to provide an easy linkage between the central and the **remote** offices for both network and **project-level management**. The organizational barriers, development process, tools and technology, data integration, and benefits of the improved data-**management** system are discussed. The developed system includes data regarding pavement, bridge, drainage system, traffic sign, pavement marking, and vegetation problems. How web-based information technology can be applied to an asset-**management** system is discussed. The benefits are measured for productivity, profitability, and rural road user effects.

AU: Herabat-P; Satirasetthavee-D; Amekudzi-A

SO: Transportation Research Record. 2003. (1855) pp105-111

NT: This paper appears in Transportation Research Record No. 1855, Transportation Data Research.

PB: Transportation Research Board, 500 Fifth Street, NW, Washington, DC, 20001-, USA

PY: 2003

RN: 0309085918

SYSTEMS INTEGRATION: AN EFFECTIVE PROJECT MANAGEMENT TOOL FOR A DESIGN-BUILD-OPERATE-MAINTAIN RAIL PROJECT.

The term “systems integration” is associated with computer **software** integration or computer **software/hardware** integration. However, systems integration applications in the automotive, aerospace and defense industries are equally common and more rigorously applied. Systems integration is now becoming mainstream in new start rail projects. Traditionally with design-**bid-build** projects, the owner, not the contractor, has carried out coordination and integration role between design teams. With the introduction of the design-build-operate-maintain (DBOM) contracting approach, the role is transferred to the Contractor, who must establish a rigorous systems integration process. Independently from the industry, systems integration is a continuing process, which operates through the design, **construction**, and installation, start up, activation phase of a product life cycle. System integration also continues to have a role during operation and maintenance activities. This paper presents a brief synopsis of how systems integration is being applied on the Southern New Jersey Light Rail Transit System rail project. Systems integration is defined along with the major tools required during the process and the challenges faced by systems integration are also presented.

AU: Kouassi-AJ

CA: Institute of Transportation Engineers, 1099 14th Street, NW, Washington, DC, 20005-3438, USA

SO: Conference Title: Improving Transportation Systems Safety and Performance. 2001 Spring Conference and Exhibit. Location: Monterey, California. Sponsored by: Institute of Transportation Engineers. Held: 20010325-20010328. 2001. pp8

NT: Full conference proceedings available on CD-ROM, ISBN 0935403604.

PY: 2001

STATES TURN ON TO **WEB** FOR HIGHWAY **BIDDING**.

State departments of transportation (DOTs) are expanding their use of the Internet to accept and process contract **bids**, though acceptance by contractors is far from universal. Some 34 DOTs are building systems with **software** licensed from the American Association of State Highway & Transportation Officials (AASHTO). Others are developing their own. Despite precautions such as encryption, electronic signature registries and electronic lockboxes, some contractors still have security concerns and find it difficult to trust their **bids** to delivery via computer **software**.

AU: Sawyer-T

SO: ENR. 2001/02/26. 246(8) pp53-54

PB: McGraw-Hill Information Systems Company, 1221 Avenue of the Americas, New York, NY, 10020, USA

PY: 2001

EMPHASIZING DESIGN/BUILD.

Most states have traditional procurement processes for the acquisition of products and services. These are (1) low-**bid** with or without prequalification “letting,” developed for use in the acquisition of **construction** projects; (2) professional engineering services/consultant selection, which is based on technical qualifications, and (3) “nonprofessional services” selection, which typically considers both qualifications and price. Each process has its own strengths, when procuring a single product or service. When procuring a technically sophisticated system, careful consideration of which procurement process(es) to use is necessary, in order to gain the appropriate balance of technical sophistication, system quality, and cost effectiveness. The combination product/service procurement that is necessary to design and deploy Intelligent Transportation Systems (ITS) infrastructure has characteristics that call for multiple types of procurement. The combination of field equipment, facility, control center equipment, and computer hardware/**software** into a single procurement has some demonstrated advantages, as is being found in several “experimental” procurements around the country. The purpose of this white paper is to present and discuss an alternative in procurement methodology for projects deploying ITS infrastructure. First, the paper will set the scene; then it will describe some of the pitfalls of the traditional methods. Lastly, it will discuss the applications of design/build in addressing or avoiding those problems.

AU: Pearce-VP

CA: Institute of Transportation Engineers, 525 School Street, SW, Suite 410, Washington, DC, 20024-2729, USA

SO: Conference Title: Institute of Transportation Engineers 67th Annual Meeting. Location: Boston, MA. Sponsored by: Institute of Transportation Engineers. Held: 19970803-19970807. 1997. n.

NT: Full conference proceedings available only on CD.

PY: 1997

A NEW PARADIGM IN COMMUNICATION: THE **WEB-ENABLED CONSTRUCTION TEAM.**

From member forums to project **web** sites, many believe that the Internet and its relatively simple working environment is the catalyst that will transition the **construction** industry from paper to digital communication, particularly in the way of project **collaboration** and **project management**. In terms of **online project management**, there is a tool on the market today to meet just about anyone's business requirements and technology skills. The infrastructure that supports each of these **online** services is similar. Most take advantage of advanced server technology to store and manage project information as it is submitted from project participants. The server is managed entirely by the provider in a secure, password-protected environment. Firms of all sizes in all capacities are buying into these services as a way to manage information better and faster and thereby build quality facilities. Fees for these **online** services vary, some charging per user, others per project. Some architecture/engineering/**construction** professionals opt to develop their own **web**-based **project management** sites. Many firms start out simple, building a **web** page that simply disseminates corporate information. Others use it to simply record project progress, something that visitors to the site can use to stay current. As the industry continues its rapid development process, experts predict that it will not be long before all facets of **construction software**-accounting, computer aided design, estimating, **project management**, and scheduling will have similar functionality to share information via the Internet.

SO: ENR. 1998/06/01. 240(22) pp2

NT: Included in a special advertising section, "Computers," to this journal issue. Page Range: pp C4, C7

PB: McGraw-Hill Information Systems Company, 1221 Avenue of the Americas, New York, NY, 10020, USA

PY: 1998

WEB-BASED INFORMATION MANAGEMENT SYSTEM FOR CONSTRUCTION PROJECTS.

Construction project managers must systematically organize a large volume of incoming information while responding to daily requests on project-related matters. This paper presents a **web**-based project information management system (**WebPIM**) that can be used in civil engineering applications, particularly in **construction project management**. All project information in the proposed system is centralized in a **project database** residing in the project server, instead of being distributed to many different locations. By utilizing the latest **web** technology, the system works as an information platform for all design and **construction** participants of a **construction** project throughout the project's life cycle. A prototype model is designed in this paper to illustrate the application of the proposed system and the hardware and **software** requirements for the intended application. Data transfer speed and security are addressed. The **WebPIM** system developed here can be used as a platform for expanding to other project functions such as project scheduling, material procurement and remote site investigation.

AU: Lam-HF; Chang-T-YP

SO: Computer-Aided Civil and Infrastructure Engineering. 2002/07. 17(4) pp280-293

PB: Blackwell Publishers, 350 Main Street, Malden, MA, 02148-, USA

PY: 2002

SELECTION AND IMPLEMENTATION OF **WEB-BASED PROJECT MANAGEMENT** AND TECHNICAL **COLLABORATION** SYSTEMS FOR PORT DEVELOPMENT USE.

The appropriate use of Internet-based **collaboration software** facilitates improved **project management** and technical **collaboration** efficiency. Port projects provide a perfect opportunity for the use of these systems because there tend to be many firms involved that are dispersed geographically. Project **websites** and **collaboration** systems (PWs) enable teams to share time-critical information and documents and gain community. Challenges include 1) understanding PW options and selecting a solution; 2) how to use PWs without “losing” a team to frustration, lack of interest, or the reversion to older systems; and 3) how to evaluate the costs and benefits of alternatives. This paper highlights specific port projects where PWs have added value and facilitated communication in design, program, and **construction** management projects.

AU: Johnson-D

CA: American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA, 20191-4400, USA

SO: Conference Title: Port Development in the Changing World. Ports 2004. Location: Houston, Texas. Sponsored by: Ports and Harbors Technical Committee of the Coasts, Oceans, Ports and Rivers Institute (COPRI) of the American Society of Civil Engineers; Permanent International Association of navigation Congresses, US Section, (PIANC); Transportation Research Board. Held: 20040523-20040526. 2004. pp11

NT: Full conference proceedings available on CD-ROM.

PY: 2004

RN: 0784407274

STREAMLINE AND SAVE \$\$.

This article describes two new **software** tools that can improve budget and payment processes for contractors and owners. The first tool is the IntelliCost system, which handles **bidding**, **bid** analysis, budget-to-actual comparison and change management. The IntelliCost system is being used by the Montgomery County Department of Public Works and Transportation in Maryland to monitor and analyze costs for its capital **construction** program. The second tool is a new application for payment solution developed by PrimeContract. The PrimeContract application streamlines the payment process by transitioning it from paper to an electronic commerce process. Features of the two systems are described and compared.

AU: Levin-P

SO: Constructor. 2002/08. 84(8) pp34, 36

PB: Associated General Contractors of America, 1957 E Street, NW, Washington, DC, 20006, USA
PY: 2002

IMPROVING THE DELIVERY OF ROADWORKS THROUGH **ONLINE** REMOTE **CONSTRUCTION** MANAGEMENT

This paper describes early trials in the Queensland Department of Main Roads of **online** remote **construction** management (ORCM), the aim of which is to use electronic communication technologies to enhance **online** real time communication between the parties to a **construction** project, and thus improve the roadworks delivery process. ORCM uses electronic communication processes (such as the Internet) to maximize the use of time of personnel engaged in **construction** projects and reduce the large amounts of paperwork generated in many **construction** projects. It has particular advantages where the parties in a project are geographically dispersed. Trials of this methodology by the Department are taking place in both rural and urban areas. This research is evaluating the issues and benefits associated with the implementation of this methodology. A typical trial site is described. This site has used a **web**-based system to manage communications between principal, superintendent, contractor and the site. At this early stage, the process is promising. Areas that require further consideration include the strengthening of the legal position with respect to the use of electronic transactions, and the security and integrity of data. The associated risks require management and the implementation of appropriate processes, such as putting in place appropriate precautions and developing suitable contract documentation. At the time of writing, the next stages of the research are trials of ORCM in pre-**construction** and maintenance, and enhancement into a total intelligent project delivery process through adding to the process other technologies such as video conferencing and wireless transmission, and incorporating into the process electronically aided design and **project management** technologies. (a) For the covering entry of this conference, please see ITRD E204173.

AU: THORPE-D (Queensland. Department of Main Roads)
SO: ARRB TRANSPORT RESEARCH LTD CONFERENCE, 20TH, 2001, MELBOURNE, VICTORIA, AUSTRALIA. 2001. 18P
PB: ARRB TRANSPORT RESEARCH LTD, 500 BURWOOD HIGHWAY, VERMONT SOUTH, VICTORIA, 3133, AUSTRALIA
PY: 2001
RN: 0-86910-799-2

AEC INTERNET **PROJECT** MANAGEMENT TOOLS: THE GOOD, THE BAD, AND THE FUTURE.

The paper discusses the activity in the area of Internet-based **project management** (PM) for the Architectural, Engineering, and **Construction** (AEC) industry. It identifies some of the benefits such as the recognizing by organizations the medium's potential to manage information, communicate and collaborate, as well as test the many tools and services being offered. It is also

necessary to recognize that many users are not ready for the latest **web**-based PM tools and techniques. The paper identifies what works and what does not work, and discusses the need for the industry to set common standards and interfaces to utilize the Internet and other emerging technologies to leverage the benefits and opportunities available.

AU: Sadik-Khan-J; Eberhard-D

CA: American Public Transportation Association, 1666 K Street, NW, Washington, DC, 20006-
, USA

SO: Conference Title: Rail Transit Conference. Location: Boston, Massachusetts. Sponsored
by: American Public Transportation Association. Held: 20010610-20010614. 2001. pp3

NT: Full conference proceedings available on CD-ROM.

PY: 2001

CONSTRUCTION BASELINE PRODUCTIVITY: THEORY AND PRACTICE.

In this paper, the theoretical basis for **construction** labor productivity measurement is presented. In particular, the theoretical basis for baseline productivity measurements is developed by examining a productivity database consisting of 23 projects involving masonry **construction**. An important hypothesis is presented showing that as the design becomes more complex, the baseline productivity worsens. It is also hypothesized that higher values of the coefficient of variation indicates a higher variability in management and craft skills and in the use of technology. Two measures are proposed to measure the performance of individual projects: the disruption index and the **project management** index. These two measures identify the best and worst performing projects. Cumulative probability distributions of the disruption index and the **project management** index were also developed to evaluate the 23-**project database** and compare it with other databases. The hypotheses developed from the 23-masonry **project database** were tested against an eight-**project database** of concrete formwork and a 12-**project database** of structural steel erection. Strong support for each hypothesis was found using the two additional databases.

AU: Thomas-HR; Zavrski-I

SO: Journal of **Construction** Engineering and Management. 1999/09. 125(5) pp295-303

PB: American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA, 20191-4400,
USA

PY: 1999

A NEW SPIN ON **BID** SETS.

Electronic **bids** sets (EBSs) can save time, money, errors, and headaches. By putting **construction** documents on CD and then using various **software** programs to view them, one can simplify the **bid** process and offer a greater number of participants access to the process. Learning to create and use them may take some effort, but the payoffs justify the investment. Electronic storage can save time as well as space. With **construction** documents in a more accessible, electronic format, searches go much faster, and there is far less chance of any data

getting misplaced. In addition, with **Web** server technology, an electronic search can be extended to look within documents that are stored on a server. EBSs are in their infancy, and many more improvements lie in the near future. A sidebar lists resources on EBS and creating CDs.

AU: Watson-MS

SO: Civil Engineering. 1998/08. 68(8) pp55-57 (2 Fig.)

PB: American Society of Civil Engineers, 345 East 47th Street, New York, NY, 10017-2398,
USA

PY: 1998

TRAFFIC CONTROL / CONSTRUCTION STAGING

ROBERT FROST MEETS WOODY ALLEN IN THE WORK ZONE.

Lane rental, A+B bidding, incentives for early completion, and night construction have all reduced the impact of road construction on users. However, the best guidance on estimating user delay costs (UDCs) in the future is included in the Federal Highway Administration Interim Technical Guide on Life Cycle Cost Analysis. The procedure outlined in the guide provides a reasonable approach to estimating UDC so that different strategies may be compared. It has recently been suggested that the transportation industry should apply a salvage value to UDCs as they do with construction and rehabilitation costs. The argument is that the salvage value most commonly used for construction, maintenance, and rehabilitation costs is not truly a salvage value but a deferred cost. Users also pay a cost in time and vehicle operating costs that helps to defer the next time they will incur a cost. Therefore, a salvage value should be applied to UDCs. This article argues that by using salvage value for UDCs, the impact to users in the future may well be ignored. Potentially, it could result in constructing projects today that cannot be rehabilitated in the future without unreasonable impacts on the user.

AU: Hansen-K

SO: HMAT. 2000/09. 5(5) pp32-34

PB: National Asphalt Pavement Association, 5100 Forbes Boulevard, Lanham, MD, 20706-4413, USA

PY: 2000

LANE RENTAL--INNOVATIVE WAY TO REDUCE ROAD CONSTRUCTION TIME.

In recent years, the public has faced a substantial increase in the number of transportation projects that are being constructed in urban areas under heavy traffic. This type of construction is causing the public major inconvenience, is increasing the number of accidents, and is causing substantial losses to the business community in the affected areas. Because of a perception that contractors focus only on their obligations of meeting budget and schedule considerations under conventional contracting methods and that they do not consider the inconvenience to the public caused by construction work, new contracting methods have been developed that specifically address this problem. This paper describes a method that has been used in the United Kingdom called **lane rental**. The **lane rental** method combines the cost to the using public for the closing of urban traffic routes with the traditional costs of construction. Under this system, contractors are required to consider, and include, both of these costs in the bidding process. The principles of **lane rental** and the adaptation to the construction industry environment in the United States are discussed in this paper. Two case studies of projects that are bid under **lane rental** provisions and the lessons that can be learned from those cases are described in this paper.

DE: UNITED-KINGDOM; LANE-RENTAL; HIGHWAY-CONSTRUCTION; ROAD-CONSTRUCTION; CONSTRUCTION-SCHEDULING; CONTRACTING-; CONTRACT-ADMINISTRATION; URBAN-AREAS; CONSTRUCTION-COSTS; INCONVENIENCE-; HIGHWAY-USER-COSTS; ROAD-USER-COSTS; CONTRACTORS-; CONTRACTORS-BIDS; CONSTRUCTION-INDUSTRY; UNITED-STATES; CASE-STUDIES; CONSTRUCTION-PROJECTS

SC: CONSTRUCTION (H33); ADMINISTRATION (H11); CONSTRUCTION-OF-PAVEMENTS-AND-SURFACINGS (I52); ECONOMICS-AND-ADMINISTRATION (I10)

PA: American Society of Civil Engineers

AU: Herbsman-ZJ; Glagola-CR

SO: Journal of Construction Engineering and Management. 1998/09. 124(5) pp411-417

PB: American Society of Civil Engineers, 345 East 47th Street, New York, NY, 10017-2398, USA

PY: 1998

STRATEGIES USED BY STATE DOT'S TO ACCELERATE HIGHWAY CONSTRUCTION PROJECTS. IN: COMPENDIUM: PAPERS ON ADVANCED SURFACE TRANSPORTATION SYSTEMS, 2002.

Every day motorists are faced with driving through construction work zones throughout the state of Texas. Some construction projects due to their location and type of traffic control increase congestion and delays. There is a need to speed up construction on all types of projects using accelerated construction strategies. To determine the extent of accelerated construction strategies usage in the United States, the author conducted a literature review and a state department of transportation (DOT) survey. The results of the survey indicate that most states that responded are using accelerated construction strategies in some form or fashion, especially on large projects that impact the highway travel lanes. Based on the research, the following techniques were determined to be applicable to address the problem of accelerating construction time: calendar day definition for working day; incentive using contract administrative cost; milestones with incentive/disincentive (I/D); substantial completion I/D; **lane rental** disincentive; A+B provision; variable lead time; and design-build. Each of the techniques was classified by level of acceleration; however, the most widely used and most liked by DOTs and contractors as well, are the I/D techniques. They are win-win situations for both parties and they result in shorter construction times and monetary gain to contractors. Several techniques were applied to example projects in the Atlanta District in order to test the guidelines developed from this report. The results indicate that, depending on the type of project, size and location, there is always going to be an available technique that can be utilized to accelerate it. Guidelines for various levels of acceleration were developed from this report and the results of these guidelines appear to be applicable to all projects depending on the level of acceleration desired and warranted by a particular project.

AU: Ibarra-C; Dudek-CL (Editor)

CA: Texas Transportation Institute, Texas A&M University, College Station, TX, 77843-3135, USA; Southwest Region University Transportation Center, Texas Transportation Institute, Texas A&M University, College Station, TX, 77843-3135, USA

SO: 2002/08. pp83-125

NT: This study was supported by a grant from the U.S. Department of Transportation, University Transportation Centers Program.

PY: 2002

RN: Report Number: SWUTC/02/473700-00003-4; Contract/Grant Number: DTRS99-G0006



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